EPSON®
STYLUS COLOR IIs

COLOR INK JET PRINTER

User's Guide

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FCC Compliance Statement
For United States Users

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- ❑ Reorient or relocate the receiving antenna.
- ❑ Increase the separation between the equipment and receiver.
- ❑ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ❑ Consult the dealer or an experienced radio/TV technician for help.

WARNING

The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

For Canadian Users

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

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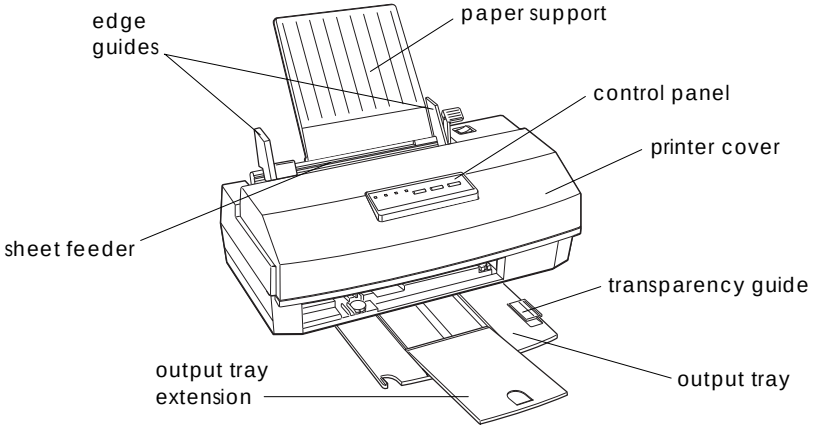

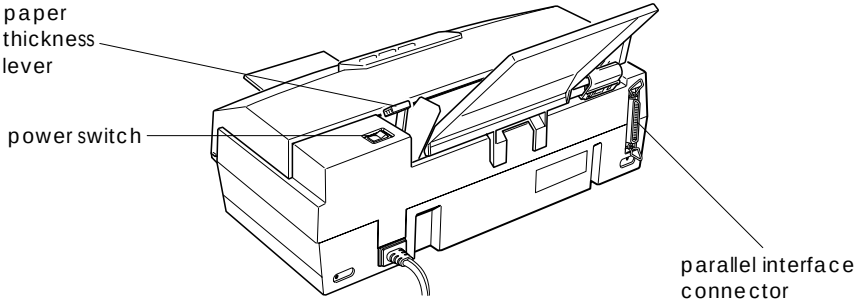

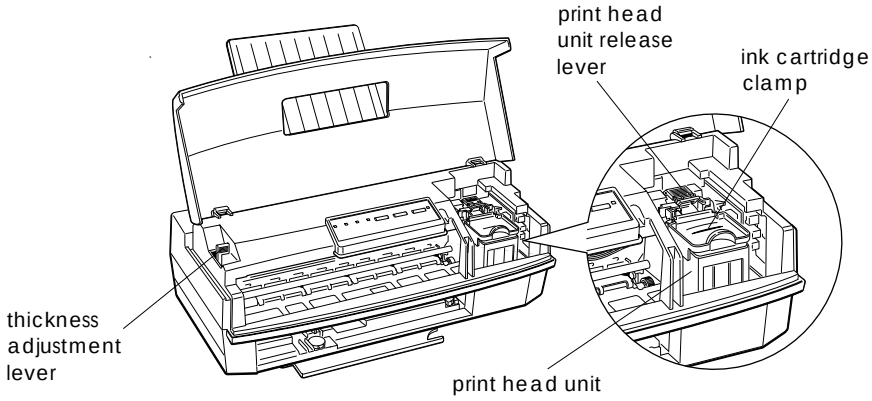

Introduction

The EPSON® Stylus® COLOR IIs is an affordable, high-quality ink jet printer. It can print up to 16 million colors at high resolution to produce photo-quality color images. The printer also produces realistic grayscale images, sharp text, and line art. The printer's ink jet technology allows it to operate quietly, keeping your workspace peaceful.

The Stylus COLOR IIs is easy to install and use. You simply set it up, connect it to your computer, and install the printer driver software, as described in the *Setup Guide*. The printer has a built-in parallel interface so you can connect it to any IBM® PC or compatible computer.

Getting the Most Out of Your Printer

The printer supports a wide variety of settings that let you improve print quality or speed up printing. You customize these settings using the printer driver. Before using your printer, read this section to learn more about the print options available to you.

Also click on the ReadMe icon in the EPSON program group in Microsoft® Windows® for the latest information.

Three Resolutions to Choose From

Resolution is a measure of the amount of detail that can be represented. The higher the resolution, the more detailed and realistic the image, and the longer it takes to print. For printed images, resolution is measured in dots per inch (dpi).

Your printer has three resolutions: 720 dpi, 360 dpi, and 180 dpi. Use 720 dpi for the best possible images. For high-quality images in less time, use 360 dpi. When speed is important and draft quality is good enough, use 180 dpi. For guidelines on selecting the best resolution for your print jobs, see Chapter 2.

Special Papers

The type of paper you use is very important. Although you get good results with plain bond paper, you will get better results by using coated papers because they do not absorb as much ink.

To ensure the best possible quality, EPSON offers special coated papers, glossy papers, and transparencies that are formulated specifically for the inks used by the printer. You can order these products from EPSON Accessories at **(800) 873-7766** (U.S. sales only). In Canada, call **(800) BUY-EPSON** for sales locations. For information about special papers and other media, see Chapter 1.

Specially Formulated Ink

EPSON's black and color ink cartridges are specially formulated to work with EPSON paper and the driver to deliver the best looking images. Always use genuine EPSON ink cartridges and do not refill them. Other products may cause damage not covered by EPSON's warranty.

Automatic Printer Driver Settings

The printer driver includes an Automatic Document Type option that sets various printer driver settings for you. When you select this feature, the driver analyzes the elements on the page to be printed and adjusts the driver settings so your printed results are appropriate for each image type.

MicroWeave for Superior Output

The printer's MicroWeave feature is a special printing mode you can use to enhance your printed output. When MicroWeave is on, the printer selectively applies ink in an intricate pattern to eliminate the possibility of banding (light, horizontal lines which mar an image) that can sometimes occur in normal mode.

High Speed Mode for Fast Printing

High Speed mode increases the print speed. When it is on, the printer prints bidirectionally; that is, it prints a line from right to left and the next line from left to right. When High Speed mode is off, all lines are printed in the same direction.

Printing is faster with High Speed mode on. However, the vertical alignment may not be as precise. For this reason, turn off High Speed mode when you need to improve print quality.

Energy Star Compliance

As an Energy Star Partner, EPSON has determined that this product meets the Energy Star guidelines for energy efficiency.

The EPA estimates that if all desktop computers, printers, and other peripheral devices met Energy Star standards, energy cost savings would exceed $1 billion annually and carbon dioxide emissions would be reduced by 20 million tons.

All of EPSON's ink jet printers conform to Energy Star standards.

Energy-saving Tips

Here are a few tips you can use to be even more energy-wise:

- ❑ If your monitor isn't Energy Star compliant, turn it off when you're not using it.
- ❑ Turn off your computer, printer, and monitor each day when you are done using them.
- ❑ Use the print preview option in your software so you can catch errors before you print something.
- ❑ If you have an electronic mail system available to you, send E-mail rather than memos. Not only is this faster, but you'll save paper and storage space too.

How to Use This Manual

This manual explains how to use your printer once you have set it up. First follow the instructions in the *Setup Guide* to install your printer; then refer to this manual as needed for operation and maintenance information.

Chapter 1, "Paper Handling," explains how to select the right paper or other media for your print job and how to load it in your printer.

Chapter 2, "Controlling the Printer," provides instructions for managing the printer's operation through the printer driver software and the printer's control panel. It also tells you how to manage print jobs and access the Default Setting mode.

Chapter 3, "Maintenance," gives instructions for cleaning the print heads, replacing an ink cartridge, calibrating the printer, cleaning the printer, and transporting it.

Chapter 4, "Troubleshooting," contains troubleshooting guidelines for any print quality or printer operation problems you may have.

Appendix A, "Technical Specifications," contains the specifications for the Stylus COLOR IIs printer.

Appendix B, "Commands and Character Tables," lists the ESC/P 2™ emulation commands supported by the printer and shows the printer's built-in character tables.

A **Glossary** and **Index** are included at the end of the manual.

Where to Get Help

If you purchased your printer in the United States or Canada and you need technical assistance, you can call an EPSON Color Specialist at **(800) 788-0343**.

EPSON also provides customer support and service through a network of Authorized EPSON Customer Care Centers and provides the following services when you dial **(800) 922-8911**:

- ❑ EPSON technical information library fax service
- ❑ Product literature on current and new products
- ❑ Assistance in locating your nearest Authorized EPSON Reseller or Customer Care Center
- ❑ Technical information on the installation, configuration, and operation of EPSON products
- ❑ Customer relations.

You can purchase ink cartridges, paper, parts, printed manuals, and accessories for EPSON products from EPSON Accessories at **(800) 873-7766** (U.S. sales only). In Canada, call **(800) BUY-EPSON**.

If you purchased your printer outside the United States or Canada, contact your EPSON dealer or the marketing location nearest you for customer support and service.

If you need help with any software program you are using, see the documentation for that program for technical support information.

Electronic Support Services

If you have a modem, the fastest way to access helpful tips, specifications, drivers, application notes, and bulletins for EPSON products is through the online services below.

World Wide Web

If you are connected to the Internet and have a Web browser, you can access EPSON's World Wide Web site at http://www.epson.com. EPSON's home page links users to What's New, EPSON Products, EPSON Connection,℠ Corporate Info and EPSON Contacts. Link to the EPSON Connection for the latest drivers and FAQs (Frequently Asked Questions) and the EPSON Chat area. To get in touch with EPSON around the world, EPSON Contacts includes Contact Information for local EPSON subsidiaries.

EPSON Bulletin Board Service

You can call the EPSON Bulletin Board Service (BBS) at **(310) 782-4531**. No membership is required. Make sure your communications software is set to 8 data bits with 1 stop bit, no parity bit, and a modem speed of 28.8 Kbps or less. See the documentation that came with your communications software for more information.

CompuServe online support

CompuServe® members can call the Epson America Forum on CompuServe. If you are already a member, simply type GO EPSON at the menu prompt to reach the Forum.

If you are not currently a member, you are eligible for a free introductory membership as an owner of an EPSON product. This membership entitles you to:

- ❑ An introductory credit on CompuServe
- ❑ Your own user ID and password
- ❑ A complimentary subscription to *CompuServe Magazine*, CompuServe's monthly publication.

To take advantage of this offer, call **(800) 848-8199** in the United States and Canada and ask for representative #529. In other countries, call the following U.S. telephone number: **(614) 529-1611**, or your local CompuServe access number.

Important Safety Instructions

Before using your printer, read the following safety instructions to make sure you use the printer safely and effectively.

- ❑ Turn off and unplug the printer before cleaning. Clean with a damp cloth only. Do not spill liquid on the printer.
- ❑ Do not place the printer on an unstable surface or near a radiator or heating vent.
- ❑ Do not block or cover the openings in the printer's cabinet or insert objects through the slots.
- ❑ Use only the type of power source indicated on the printer's label.

- ❑ Connect all equipment to properly grounded power outlets. Avoid using outlets on the same circuit as photocopiers or air control systems that regularly switch on and off.
- ❑ Do not let the power cord become damaged or frayed.
- ❑ If you use an extension cord with the printer, make sure the total ampere rating of the devices plugged into the extension cord does not exceed the cord's ampere rating. Also, make sure the total of all devices plugged into the wall outlet does not exceed 15 amperes.
- ❑ Except as specifically explained in the *User's Guide*, do not attempt to service the printer yourself.
- ❑ Unplug the printer and refer servicing to qualified service personnel under the following conditions:

  If the power cord or plug is damaged; if liquid has entered the printer; if the printer has been dropped or the cabinet damaged; if the printer does not operate normally or exhibits a distinct change in performance. Adjust only those controls that are covered by the operating instructions.

Chapter 1

Paper Handling

1

Choosing Paper and Other Media 1-2

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Read this chapter for information about choosing the best paper and other media for your printing needs and for instructions on loading them.

Choosing Paper and Other Media

You can use most plain bond paper with your printer and achieve good results. Coated papers give you better results because they reduce the amount of ink that is absorbed. However, if the coated paper does not absorb enough ink, the ink can smear.

To ensure the best results, EPSON provides special papers and transparencies that are formulated for the inks used in EPSON ink jet printers. These papers include the following:

- **EPSON special coated paper for 360 dpi**. Use this paper for best results when printing at 360 dpi.
- **EPSON special coated paper for 720 dpi**. Use this paper for best results when printing at 720 dpi. Five sample sheets are included with the printer.
- **EPSON high-quality glossy paper**. Use this paper with 720 dpi to produce camera-ready composites. When printing on glossy paper, use only EPSON high-quality glossy paper.
- **EPSON transparency film**. When printing transparencies, use only EPSON transparencies. For best results, use transparencies within six months of opening the package. Do not select 720 dpi when printing transparencies.

To order EPSON papers and transparencies, contact your dealer or call EPSON Accessories at (800) 873-7766 (U.S. only). In Canada, call (800) BUY-EPSON for sales locations.

Use the following part numbers when ordering:

Paper	Size	Part Number
Special coated paper for 720 dpi	Letter (8.5 x 11 inches) Legal (8.5 x 14 inches)	S041062 S041048
Special coated paper for 360 dpi	Letter (8.5 x 11 inches)	S041060
High-quality glossy paper	Letter (8.5 x 11 inches)	S041072
Transparency film	Letter (8.5 x 11 inches)	S041064

Setting the Paper Thickness and Adjustment Levers

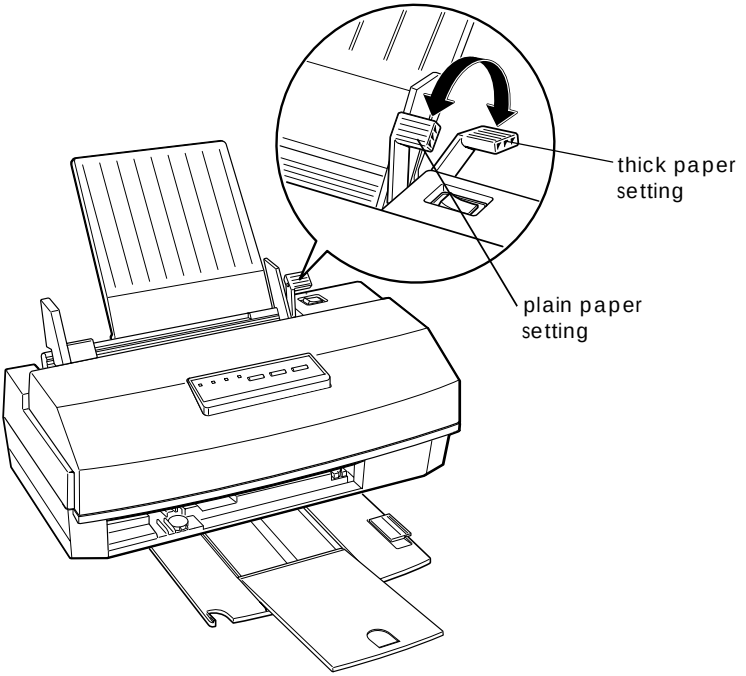
Before you start printing, you should check the paper thickness and adjustment levers to make sure they are set correctly for the type of paper or other media you are loading.

Caution:
Before you change the lever settings, make sure there is no paper in the paper path and that printing is paused. To do this, press the Pause *button or turn off the printer.*

Paper Thickness Lever

The paper thickness lever on the right side of the sheet feeder has two settings: plain paper and thick paper. Set the lever to the position that best suits the paper or other media you plan to use, as shown in the following table and illustration.

Paper type	Paper thickness lever position
Standard paper	Plain paper
Transparency film	Plain paper
Envelopes or labels	Thick paper
Manually fed paper	Thick paper

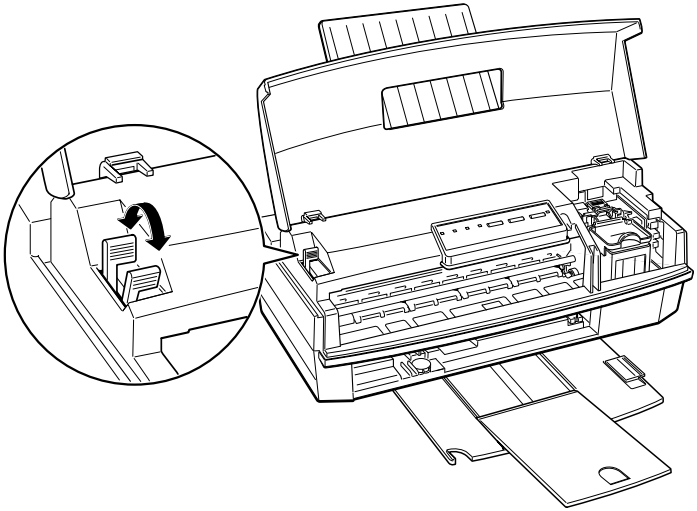


Thickness Adjustment Lever

You need to change the position of the thickness adjustment lever when you print on thick paper, such as envelopes, or if your documents smear, as shown in the following table.

Paper type	**Thickness adjustment lever position**
Standard paper	0
Transparency film	0
Envelopes or labels	+
Previously smeared documents	+

To access the lever, open the printer cover; the lever is in the left back corner, as shown below.



If a document is smeared, set the thickness adjustment lever to the + position (regardless of the paper type) and print it again.

If your document still smears, press the Alt and Load/Eject buttons on the printer's control panel to enable the non-smear printing mode. See "Using the Printer's Control Panel" in Chapter 2 for more information.

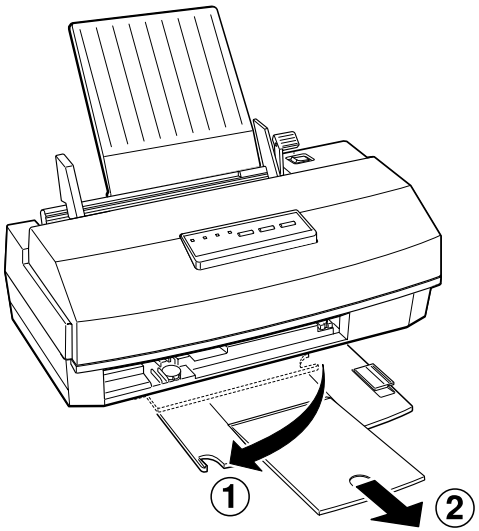
Loading Plain Paper

This section explains how to load plain bond paper in the printer. For instructions on loading coated or glossy paper, envelopes, and transparencies, or on feeding paper one sheet at a time, see page 1-8.

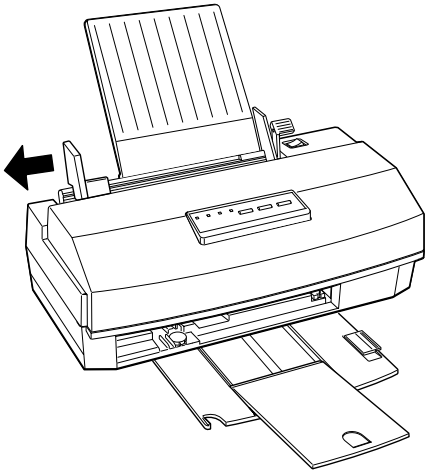
You can load up to 100 sheets of plain paper in the sheet feeder. Be sure to load it with the printable surface facing up. The printable surface is marked with an arrow on most plain paper packaging.

Note:
You can use these instructions for printing on labels; however, be sure to set the paper thickness lever to the thick paper position and the thickness adjustment lever to the + position. Also make sure no labels are curled or peeling away from the backing when you load them.

1. Slide out the output tray located at the bottom of the printer; then pull out the extension.

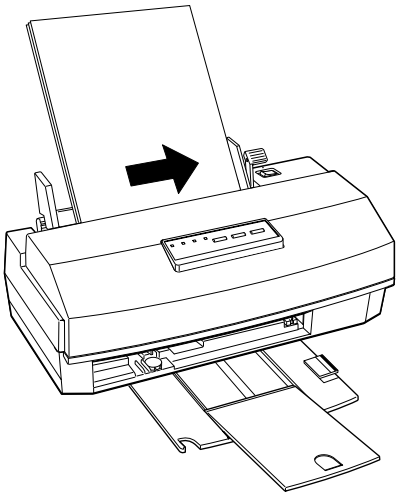


2. Slide the left edge guide on the sheet feeder to the left as far as it will go.



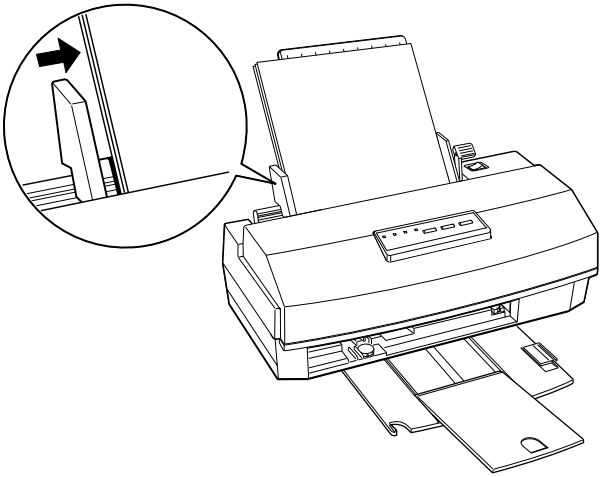
3. Fan a stack of paper; then tap it on a flat surface to even the edges.

4. Load the stack of paper, printable side up, so that its right edge rests against the right side of the sheet feeder.



Do not load paper above the arrow mark inside the left edge guide of the sheet feeder.

5. Slide the left edge guide against the left edge of the paper as shown below.



6. Change the Media Type and other printer driver settings so they are appropriate for the paper or labels you loaded. For instructions see Chapter 2. (For labels, select Plain paper as your Media Type.)

Feeding Paper One Sheet at a Time

You may find instances when you prefer to feed paper into the printer one sheet at a time (when using glossy paper, for example). Follow these steps:

1. Make sure that printing is paused. To do this, press the Pause button.

2. Remove any paper from the sheet feeder and the paper path.

3. Move the paper thickness lever to the thick paper position.

4. Set the thickness adjustment lever for the type of paper you are loading.

5. Feed the paper one sheet at a time into the sheet feeder.

Loading Special Papers and Other Media

When using special coated paper, glossy paper, envelopes, and transparencies, keep the following in mind:

- ❑ Do not touch the printable surface of the paper; hold the sheets by their edges. The moisture and oils on your hands can reduce print quality.
- ❑ Use special coated paper and glossy papers within one year of purchase. Use transparencies within six months.
- ❑ Before printing on EPSON high-quality glossy paper, or special coated paper for 720 or 360 dpi, make sure the color print head unit is installed and Color Head Unit is selected in the driver's Document Type dialog box. If you are loading glossy paper, make sure to set Super - 720 dpi as the printing mode in the driver's Printing Mode/Options dialog box. (See Chapter 2 for instructions on using the driver.)
- ❑ When printing on high-quality glossy paper or transparencies, remove each sheet from the output tray immediately after it is printed. Make sure each sheet is dry before stacking.
- ❑ You can print on sheets of labels in your printer; just follow the instructions for loading plain paper on page 1-6.
- ❑ Return unused sheets and envelopes to their original package as soon as possible after you finish printing. Unfavorable storage conditions—especially high temperature, humidity, and direct sunlight—can damage the media.

- ❑ Follow any other special loading procedures included in the rest of this section.

Loading Special Papers and Transparencies

The following procedure explains how to load coated papers, glossy paper, and transparencies. You can load up to the following number of sheets in the sheet feeder:

- ❑ 70 sheets of special coated paper. If you load legal-size special coated paper for 720 dpi, do not load it more than halfway to the arrow mark on the left edge guide of the sheet feeder.

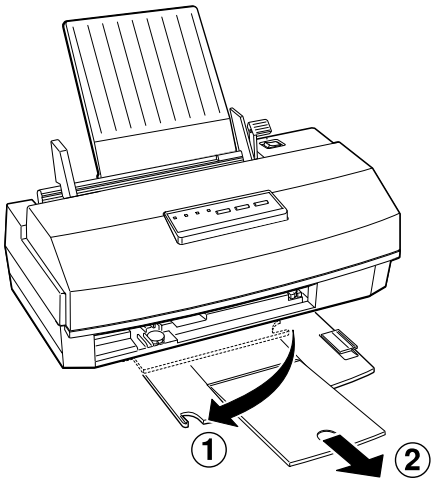
- ❑ 30 sheets of EPSON high-quality glossy paper with a sheet of plain paper beneath the last sheet in the stack; to avoid printing on the plain paper, print your document one page at a time. If you load a single sheet of glossy paper, place a sheet of plain paper beneath it and print one page at a time.

  Note:
  If you load multiple sheets of glossy paper, the minimum top margin is 1.2 inches (30 mm). To print with a smaller top margin, load and print glossy paper one sheet at a time.

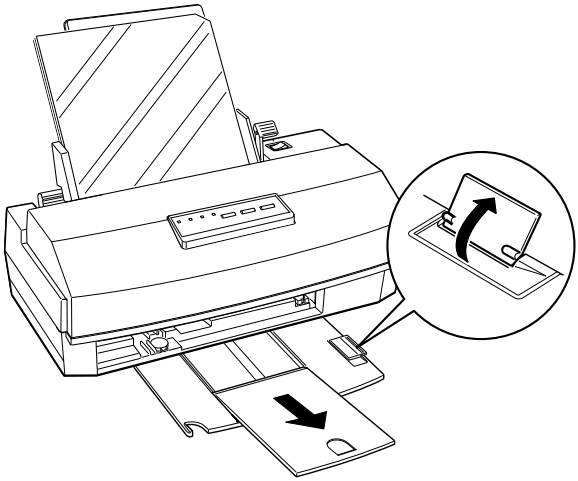
- ❑ 50 sheets of transparency film, printed one at a time, with one sheet of plain paper beneath the last transparency in the stack.

Follow these steps to load special paper or transparency film:

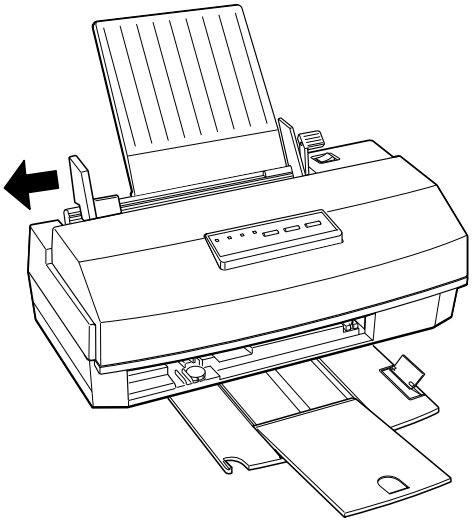
1. Slide out the output tray located at the bottom of the printer; then pull out the extension.



2. If you are loading transparencies, raise the transparency guide on the output tray, as shown.



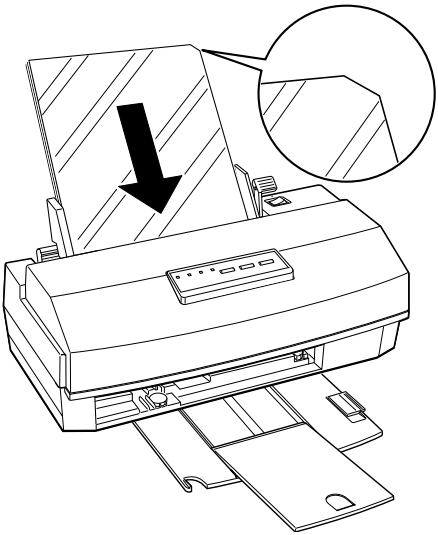
3. Slide the left edge guide on the sheet feeder to the left as far as it will go.



4. Fan a stack of paper or transparencies; then tap it on a flat surface to even the edges.

5. Load the paper or transparencies with the printable surface face up. For coated papers, the printable side is whiter than the other side.

For glossy paper and transparencies, the printable side is face up when the cut corner is positioned as shown in the illustration below.



6. Change the Media Type and other printer driver settings so they are appropriate for the paper or transparency film you loaded. (See Chapter 2 for instructions.)

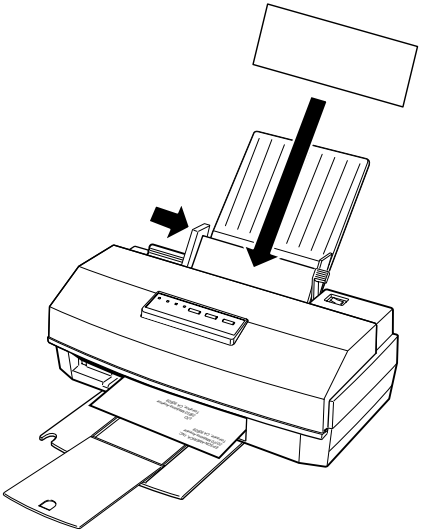
Loading Envelopes

For detailed specifications on the thickness and weight of the envelopes you can load, see Appendix A. Do not use envelopes that are curled or folded, or ones that are too thin; they may curl during printing. Also, do not choose 720 dpi resolution for envelope printing.

Follow these steps to load envelopes:

1. Make sure you set the paper thickness and thickness adjustment levers to the correct positions for envelope printing, as described on page 1-3.

2. You can load up to 10 envelopes in the sheet feeder with the printable side facing up (forward) as shown.



3. Adjust the left edge guide so the envelopes feed straight into the paper path.

4. Change the Media Type and other printer driver settings so they are appropriate for the envelopes you loaded. (See Chapter 2 for instructions.)

Chapter 2

Controlling the Printer

Using the Printer Driver 2-2
- Accessing the Driver 2-3
- Using the Driver Dialog Box 2-5
- Changing Settings 2-7
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Managing Print Jobs 2-17

Using the Printer's Control Panel 2-19
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Using the Default Setting Mode 2-23

This chapter explains how to control the printer. It is divided into four sections:

- ❑ "Using the Printer Driver" describes how to use the printer driver to control settings such as paper type, document type, printing mode, and halftoning.
- ❑ "Managing Print Jobs" explains how you can use the EPSON Spool Manager to monitor, cancel, or change the order of print jobs.
- ❑ "Using the Printer's Control Panel" covers the printer functions available through the control panel on the top front of the printer.
- ❑ "Using the Default Setting Mode" describes how to access the printer's Default setting mode. In rare cases, you may need to specify the print direction, use a different character table, or adjust the paper loading position. To make these and other changes, see this section for instructions.

Using the Printer Driver

The printer driver contains settings that allow you to control your print job. The printer comes with default values for all the settings, as listed in the table on page 2-6. Change the printer driver settings only if you want to use values different from the default ones.

The driver includes an Automatic setting (default) when you set the Document Type option. This setting lets the printer driver analyze each page of the document you will print and then select the appropriate printing mode (resolution), color matching, and halftoning settings automatically.

Accessing the Driver

You can access the driver in different ways, depending on how you want to use the settings you select:

- ❑ If you want the settings to apply to all your Windows applications, access the driver as described below for either Windows 3.1 or Windows 95.
- ❑ If you want the changes to apply only to the document(s) you will print in a particular Windows application, follow the steps on page 2-4.

Accessing the driver from Windows 3.1

Follow these steps to access the driver and change settings for all Windows 3.1 applications:

1. Double-click the Control Panel icon in the Main program group.
2. Double-click the Printers icon.
3. Choose the EPSON Stylus COLOR IIs driver in the list of Installed Printers.
4. Choose Setup. You see the printer driver dialog box shown on page 2-5.

Accessing the driver from Windows 95

Follow these steps to access the driver and change its settings for all Windows 95 applications:

1. Open the My Computer icon.
2. Double-click the Printers icon.
3. Double-click the EPSON Stylus COLOR IIs icon.

4. Pull down the Printer menu and select Properties.

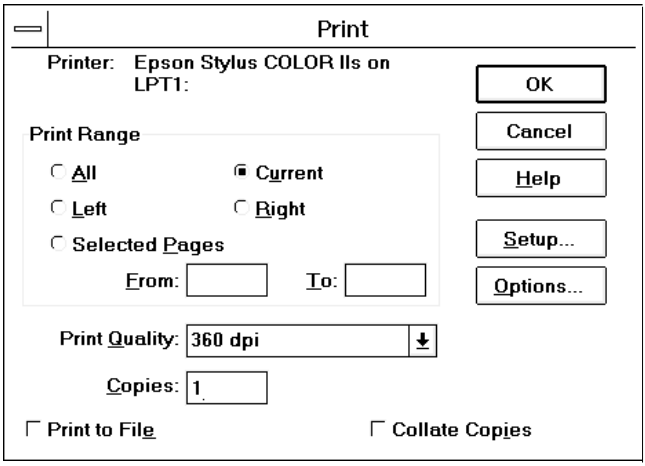
5. Click the Details tab.

6. Click the Setup button. You see the printer driver dialog box, shown on page 2-5.

Accessing the driver from Windows applications

If you want to change the settings only for the application you are currently using, access the driver by choosing Print or Print Setup from the File menu of your software program. If you choose Print Setup, you access the printer driver directly and see the dialog box shown on page 2-5.

If you choose Print, you see a Print dialog box similar to the one shown below (depending on your software program).

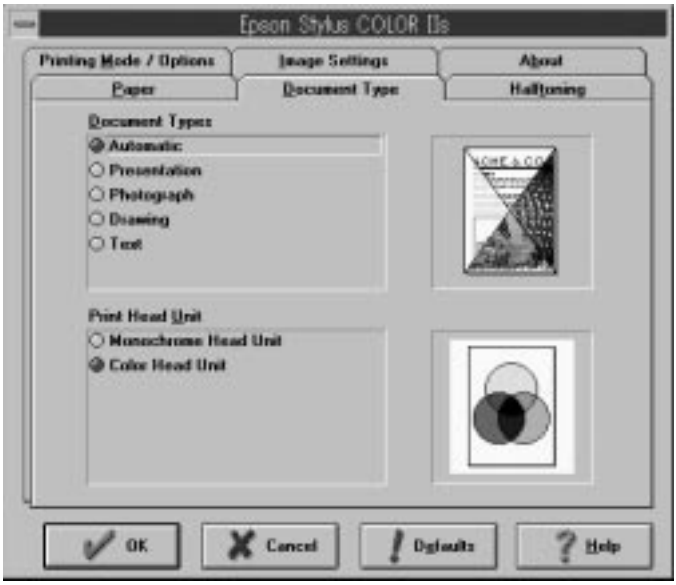


The Print dialog box contains the settings you change most often, including the number of copies and the print range. To access the printer driver settings, choose the Setup, Options, or Printer button. (You may need to select another option, depending on your software program.)

Note:
The printer driver settings you select through your Windows application apply only for the duration of your session with that application. Once you exit the application, the driver settings return to the default values you have selected through the Windows 3.1 Control Panel or Windows 95.

Using the Driver Dialog Box

However you accessed the printer driver, you see the following dialog box:



(If you do not see this dialog box, the driver has not been installed correctly. See the *Setup Guide* for installation instructions.)

At the top of the screen are tabs that open various dialog boxes. The table below summarizes the settings in each dialog box. (Factory defaults are in bold type.) Detailed descriptions of each setting follow the table.

Driver settings

Dialog box	Setting	Options
Document Type	Document Types	**Automatic** Presentation Photograph Drawing Text
	Print Head Unit	Monochrome **Color**
Paper	Paper Size	A4 210 × 297 mm A4 (Centered) 210 × 297 mm **Letter 8½ × 11 in** Letter (Centered) 8½ × 11 in Legal 8½ × 14 in Legal (Centered) 8½ × 14 in Envelope #10 4⅛ × 9½ in Envelope DL 110 × 220 mm Statement 5½ × 8½ in Executive 7½ ×10 in A6 Index card (not used) User Defined
	(Orientation)	**Portrait** or Landscape
	Paper Source	**Auto Sheet Feeder/Manual**
	Copies	Number (**1**-99) Collate (on, **off**) Reverse page order (on, **off**)
Printing Mode/ Options	Printing Mode (resolution)	Super - 720 dpi **Best - 360 dpi** Draft - 180 dpi
	Media Type	**Plain paper** Special coated paper for 360 dpi Special coated paper for 720 dpi High-quality glossy paper Transparency
	Print Options	High Speed (**on**, off) MicroWeave (on, **off**)

Dialog box	Setting	Options
Image Settings	Brightness	–50% - **0%** - 50%
	Contrast	–50% - **0%** - 50%
	Color Matching*	Off Vivid Photo-realistic Standard
Halftoning	Halftone*	No halftoning Error diffusion Dithering A Dithering B
About	—	Contains version information about the driver

* These options have no default setting; the setting is determined automatically by the Document Types setting.

Changing Settings

To change a printer setting, open the appropriate dialog box by choosing the tab. Change one or more settings and then move to the next tab you want to change. When you have made all changes in one or more dialog boxes, choose the OK button to save all the settings. This closes the printer driver and returns you to your application program or Windows.

Note:
The availability of some settings or options in a dialog box may depend on the setting selected in another dialog box; so not all options or settings may be listed, or some may be displayed in background type.

If you want to return all printer driver settings to their factory defaults, choose Defaults. To exit the printer driver without saving your settings, choose Cancel.

For more information about the settings, see this chapter, choose the Help button in the driver dialog box, or select the EPSON Stylus ReadMe icon in the EPSON program group.

Document Type

These settings tell the printer what type of document you are printing and which print head unit is installed.

Document Types

Select the document type that most closely matches the type of document you are printing or let the printer driver select it automatically.

Automatic is the default setting and produces the best printed results. This setting lets the printer driver analyze the data on each page of your document and adjust the Printing Mode (resolution), Color Matching, and Halftone settings automatically. The driver selects the resolution and halftone settings based on data contained on each entire page, but selects the color matching setting based on each object on a page, such as each graphic or block of text.

You achieve the best results using the Automatic setting. However, if you prefer to set the document type manually, choose one of the following options:

- Select Presentation when you are printing documents containing many graphic elements, such as charts in presentations.
- Select Photograph when you are printing photographs.
- Select Drawing when you are printing computer-generated illlustrations.
- Select Text when you are printing documents that contain text only.

Each of the manually set document types select predefined settings for Color Matching and Halftone, as listed in the following table.

Document Type	Color Matching	Halftone
Presentation	Vivid	Error diffusion
Photograph	Photo-realistic	Error diffusion
Drawing	Standard	Error diffusion
Text	Standard	Error diffusion

If you change a predefined Color Matching or Halftone setting, the driver erases the currently selected document type and uses your settings instead.

Print Head Unit

Specifies Color Head Unit for printing in CMY color. CMY refers to the printer's colored inks: cyan (blue-green), magenta, and yellow. (A blend of all three produces composite black.) When you select Monochrome Head Unit, the printer prints using only black ink. If you are printing a color image and Monochrome Head Unit is selected, the printer converts color data to grayscale values. If you are printing a black and white image and Color Head Unit is selected, the printing time increases significantly.

Note:
If the Print Head Unit *setting does not match the installed print head unit, the quality of your printed output may decline.*

Paper Settings

The Paper settings determine the size of the document, its orientation, and copying information.

Paper Size

By default, the printer expects letter-size (8.5 × 11 inches) paper. To select a different paper or envelope size, choose from the following predefined sizes:

A4 210 × 297 mm
A4 (Centered) 210 × 297 mm
Letter 8½ × 11 in
Letter (Centered) 8½ × 11 in
Legal 8 ½ × 14 in
Legal (Centered) 8½ × 14 in
Envelope #10 4⅛ × 9½ in
Envelope DL 110 × 220 mm
Statement 5½ × 8½ in
Executive 7½ × 10 in
User Defined

Note:
If you selected a country other than the United States in the Windows Control Panel International utility, the default paper size may be different. In addition, the measurement units displayed in the printable area example (beneath the Paper Size box) may be metric.

Use one of the Centered paper sizes only if you want the image to be centered on the page and your software program does not have a setting that lets you do this. Centered images have a slightly smaller printable area.

If you select User Defined, you can create a custom paper size in the pop-up box that appears beneath the Paper Size box. Change the current Paper Width and Paper Height settings to the values you want. You can select a width from 3.93 to 9.5 inches (100 to 241.3 mm) and a height from 3.93 to 44 inches (100 to 1117.6 mm).

Portrait or Landscape

Select either the Portrait or Landscape button to specify the orientation of the image on the page. In portrait orientation, the top of the page is parallel to the short edge of the paper. In landscape orientation, the top of the page is parallel to the long edge of the paper.

Normally you should select the page orientation in your software application, not with the driver.

Paper source

For your printer, the paper source is always Auto Sheet Feeder/Manual.

Copies

Allows you to specify the number of copies to be printed, whether to collate them (print them in sets), and whether you want to print the pages in reverse order (from last page to first page).

Normally you should select these three settings from the Print dialog box in your software program, not with the driver. Be sure you do not choose multiple copies in both the Print dialog box and the driver.

Note:
The Copies *options may require additional system memory. If you see an error message or are unable to print using these options, try closing any unnecessary applications, reducing the size of your print job, turning off the* Copies *options, or increasing system memory.*

Printing Mode/Options Settings

The Printing Mode/Options settings let you define the resolution, media type, and printing options for your document. The following table shows how these settings are related to each other and which options are available in the different modes.

Printing Mode setting	Media Type setting	Default Print Options*
Super - 720 dpi	Special coated paper for 720 dpi	MicroWeave On High Speed Off
	High-quality glossy paper	MicroWeave On High Speed Off
	Plain paper	MicroWeave On High Speed Off
Best - 360 dpi	Special coated paper for 360 dpi	MicroWeave On High Speed Off
	Special coated paper for 720 dpi	MicroWeave On High Speed Off
	Plain paper	MicroWeave Off High Speed On
	Transparency	MicroWeave On High Speed Off
Draft - 180 dpi	Plain paper	MicroWeave Off High Speed On

* You may not be able to change these options to a setting other than the default setting.

Be sure to select the Printing Mode before the Media Type.

Printing Mode

Specifies a resolution of 720 dpi, 360 dpi, or 180 dpi. Resolution is the amount of detail used to create an image. The higher the resolution, the sharper and finer the image.

For the best possible resolution, choose Super - 720 dpi. When you select this resolution, MicroWeave is automatically turned on and High Speed mode is turned off. For the best possible results at 720 dpi, load EPSON special coated paper for 720 dpi, or EPSON high-quality glossy paper.

For most color printing, select Best - 360 dpi. This resolution produces good-quality, full-color images using less memory and in less time than 720 dpi. For the best results at 360 dpi, use EPSON special coated paper for 360 dpi.

When speed is important and draft quality is good enough, use Draft - 180 dpi resolution.

Note:
Printing at lower resolutions also conserves ink.

Media Type

Sets up the printer for the type of paper loaded. Depending on the Printing Mode setting, Media Type can be one of the following:

Plain paper
Special coated paper for 360 dpi
Special coated paper for 720 dpi
High-quality glossy paper
Transparency

For specific information on when to use each paper type, see Chapter 1.

Print Options

Allows you to turn the MicroWeave and High Speed mode settings on or off.

MicroWeave reduces the possibility of banding, the light horizontal lines that can mar an image. When you turn on MicroWeave, the printer produces superior output because graphics data is reordered and printed in fine increments. It slows the print speed but is recommended for printing color and grayscale images. Because it does not improve the print quality for text and line art, turn it off to print these kinds of images faster.

When you turn on High Speed mode, the printer uses bidirectional printing, reducing the time it takes to print an image. Bidirectional printing is fast, but for highest quality always turn off High Speed mode.

Note:
If the vertical lines appear misaligned when you print with High Speed mode on, calibrate the printer as described in Chapter 3.

Image Settings

The Image Settings options allow you to adjust a document's brightness, contrast, and color correction settings. Whenever possible, use your software program to make these adjustments.

If you use the printer driver, it is best to let its Automatic Document Type setting select the appropriate image settings for you. If your original image is of poor quality, however, you can adjust the image settings to improve the printed output.

To help you decide on the best settings, a preview of a sample image appears in the Image Settings dialog box. As you change settings, the preview image is updated accordingly.

If you want to change the sample image to another bitmap (.BMP) image file, double-click the preview image area. Then, in the dialog box that appears, select any other bitmap file you may have. The image must be a 1-, 4-, or 8-bit per pixel bitmap format. If the image size is different from the original, it may appear small or not display completely in the preview image area.

Image

Adjusts the brightness and contrast of your color or grayscale printed images.

Brightness

Controls the lightness or darkness of an image. Increase brightness to lighten an image; decrease it to darken an image.

Contrast

Controls the degree of difference between the light and dark areas of an image. When you increase contrast, the light areas become very light and the dark areas become very dark. When you decrease contrast, the difference in intensity is more subtle, making the whites and bright colors appear more muted and the blacks appear very dark gray.

Color Matching

Controls the printer's color correction features based on the selected Document Type. Color Matching is automatically set to the most appropriate setting when you select a particular document type or use the Automatic setting. It is best to leave Color Matching set to the driver's selection.

To use color matching, make sure the Color Print Head is selected in the Document Type tab. If Monochrome Print Head is selected, Color Matching is not available.

The settings perform the following functions:

- Off turns off color matching so you can use your application program's color correction features.
- Vivid intensifies the colors and lightens the midtones of images such as presentation graphics and charts.
- Photo-realistic increases the contrast in images such as color photographs.
- Standard adjusts colors so they closely match the original screen colors in images such as illustrations.

Halftoning Settings

You achieve the best halftoning results when you let the printer driver's Document Type setting select the appropriate halftone method. If you selected the Automatic Document Type option, the driver selects halftone settings appropriate to each page it prints.

If you selected one of the other document types, the driver selects a predefined halftone setting. If you change a predefined halftone setting, the driver erases the currently selected Document Type option and uses the halftone setting you selected.

Note:
It is recommended that you set halftoning in the driver rather than the halftone or dithering settings available in your software.

If you prefer to set the halftoning method manually, follow these guidelines:

- Use No halftoning to speed printing for text or monochrome line art. Do not use it when printing in color.
- Error diffusion is best for photographic images. It creates color by randomly distributing the dots, making edges and colors softer. It takes longer to print, but it produces the best print quality for photographic images.
- Dithering A and Dithering B arrange dots in orderly patterns. The dithering method is relatively fast and is best suited for printing charts, graphs, and other images that require precise, solid areas of bright colors. Use Dithering A for images with limited detail and shading. Use Dithering B for images with significant detail but limited shading.

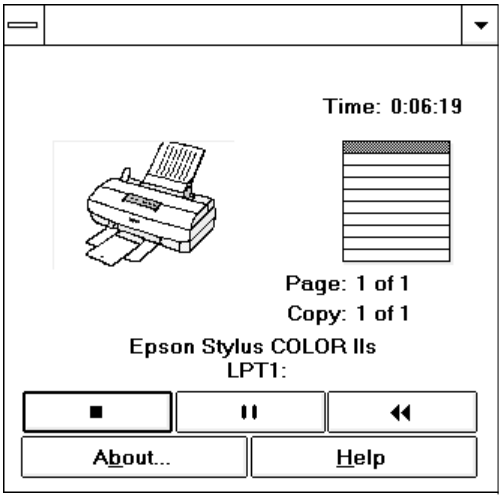
Managing Print Jobs

The EPSON Spool Manager was automatically copied to your hard disk drive when you installed the printer software. When you print a document, the printer uses the EPSON Spool Manager to send data to the printer. This allows you to continue working in your software program while printing.

Whenever you send a print job to the printer, the Despooler status box appears in the bottom right corner of your screen and an icon for the EPSON Spool Manager appears in the bottom portion of your screen. The Spool Manager icon is also included in the EPSON group so you can manage print queues or perform other operations when you are not sending a print job.

Note:
You may not see the EPSON Spool Manager icon in the bottom portion of your screen if the Windows Program Manager window or an application window is maximized. Reduce the window size to reveal the icon.

The Despooler status box, which is similar to the one shown below, allows you to monitor the progress of the print job and cancel (■), pause (❚❚), or restart (◀◀) the print job.



If you do not want the Despooler status box to appear each time you print, double-click the EPSON Spool Manager icon to open it. Then open the View menu and select Show Despool Popup to turn it off; the check mark next to the option disappears.

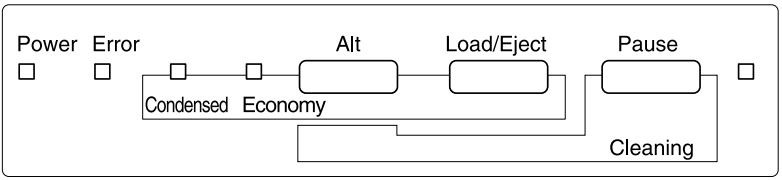
Other options in the EPSON Spool Manager allow you to hold and cancel print jobs, choose what information to display in the Spool Manager Window, and manage print queues and print jobs on a network. Click Help for more information.

You can also access the EPSON Spool Manager when you are not printing. Double-click the Spool Manager icon in the EPSON Program group.

Note:
If you get an error message while trying to print, the problem may be caused by conflicts with other temporary files or directories. See Chapter 4 for more information.

Using the Printer's Control Panel

The printer's control panel contains lights for displaying the printer status and buttons for controlling certain functions, as described in this section.



Since most printer settings can be controlled from your software, you do not often need to use the control panel. Normally you need to use it only to do the following:

- ❑ Clean the black or color print heads
- ❑ Replace an ink cartridge or print head
- ❑ Turn on economy or condensed mode
- ❑ Pause the printer temporarily or reset it.

Lights

Power	On when the printer is on.
Error	On or flashes in combination with other lights to indicate printing problems or errors. For help with printing errors, see Chapter 4.
Condensed	On when condensed mode is selected. In this mode, the printer prints selected fonts at 60% of their width so that more characters can fit on a page.
Economy	On when economy printing mode is selected. In economy mode the printer uses less ink by printing fewer dots per character. It also makes black printing appear gray. Use this mode for rough drafts of text only that are printed from DOS applications.
Pause	On when printing is paused and flashes when you clean the print heads or replace a print head unit or ink cartridge. Never turn off the printer when the Pause light is flashing. The Pause light also flashes when an error occurs.

Buttons

This section describes the control panel button functions as well as certain button combinations and power-on sequences.

Alt	Used alone or in combination with other buttons to clean the print heads, replace the print head unit or ink cartridge, and other functions.

Load/Eject	Loads or ejects a sheet of paper. The printer normally loads and ejects paper automatically.
Pause	Stops printing temporarily. Press it again to resume printing. To reset the printer, hold down this button for about five seconds until all the lights turn on. This clears the printer's buffer and restores the factory default settings.

Button combinations and power-on functions

The button combinations below let you perform additional functions to control your printer.

Alt + POWER switch	Prints a demonstration page of the printer's fonts and colors. (Paper must be loaded in the printer.) Hold down Alt until the printer feeds a page. To exit demonstration mode, wait until the Pause light comes on; then turn off the printer.
Load/Eject + POWER switch	Checks the paper length and performs a printer self test at 360 dpi. Hold down Load/Eject until the printer feeds a page. To stop the self test, press the Pause button and then turn off the printer. See "Testing the Printer" in the *Setup Guide* for more information.
Alt + Pause	Starts the print head cleaning cycle; see "Cleaning the Print Head" in Chapter 3.
Pause + POWER switch	Enters the printer's Default setting mode and prints an instruction page; see "Using the Default Setting Mode" on page 2-23 for more information. Hold down Pause until the printer feeds a page. To exit the Default setting mode, press the Pause button and turn off the printer.

Alt + Load/Eject

Selects a combination of economy printing and condensed printing modes, as shown below. Hold down the buttons together to enter Economy/Condensed mode. Then hold them down again until the Economy and Condensed lights indicate the appropriate selection.

Status	Economy light	Condensed light
Economy and Condensed printing off	Off	Off
Condensed printing on	Off	On
Economy printing on	On	Off
Economy and Condensed printing on	On	On

Alt + Load/Eject + POWER switch

Enables the non-smear printing feature, which reduces the chance of smeared pages by decreasing the per-line printing speed. This mode is helpful when printing on coated paper because it allows more time for the ink to dry. To exit the non-smear mode, press the Pause button and turn off the printer.

Load/Eject + Pause + POWER switch

Prints a page containing a hexadecimal representation (hex dump) of the data received by the printer for troubleshooting purposes. See Chapter 4 for more information. Hold down Load/Eject and Pause until the printer feeds a page. To exit the hex dump mode, press the Pause button and turn off the printer.

Using the Default Setting Mode

Additional printer functions are available through the Default setting mode. Because the printer's factory default settings are designed to meet the needs of almost all users, you rarely need to change the additional printer functions listed below. If necessary, however, you can turn on the Default setting mode and change the settings using the control panel buttons.

- Character table. Selects the set of characters and symbols that can be printed. The default is the U.S.A. character table. If you commonly use a language containing accents, symbols, or other characters not available in the U.S.A. character table, change to a different character table. For a list of character tables, see Appendix B.

- Network interface mode. If you're having trouble printing when the printer is connected to multiple computers, turn on network interface mode. By default, network interface mode is off.

- Print direction. Specifies how the print head moves across the page. The options are Uni-D, Bi-D, and Auto (default). When Uni-D is on, the print head prints in only one direction to provide the most precise alignment for graphics and text. In Bi-D printing, the print head prints in both directions. Bi-D is faster, but the vertical alignment may not be as precise as Uni-D. When Auto is selected, the printer switches automatically between Uni-D and Bi-D as necessary when it receives data.

- Auto line feed. Specifies that a carriage return character encountered in the print file be accompanied by a line feed command. By default, auto line feed is off. If text lines print on top of one another, turn on auto line feed.

- Loading position. Determines the top margin by defining how close to the paper edge the first line can print. The loading position can be 3 mm or 8.5 mm (default). Normally you should use your software to adjust your top margin.

- Font and Pitch. Select the built-in printer font and character pitch used as the default setting. The factory default pitch is 10 cpi; the default font is Courier. Generally you use your software to select the font and pitch.

- Thick paper. Select Envelope (default) if you print on thick paper or envelopes.

To turn on the Default setting mode and print instructions, turn off the printer. Then hold down the Pause button while you turn the printer back on. Follow the instructions the printer prints to change the default settings by pressing the buttons on the control panel. When you are finished, press Pause and turn off the printer to exit Default setting mode. (If a partial page feeds before you press Pause, press Load/Eject to clear the paper path.)

Chapter 3

Maintenance

Cleaning the Print Head 3-2

Replacing the Print Head Unit 3-3

Replacing an Ink Cartridge 3-7
- Selecting the Correct Ink Cartridges 3-8
- Removing and Installing an Ink Cartridge 3-9

Cleaning the Printer 3-13

Transporting the Printer 3-14

Calibrating the Printer 3-15

3

The instructions in this chapter tell you how to do the following to maintain and care for your printer:

- ❑ Clean the print head
- ❑ Replace the print head unit
- ❑ Replace an ink cartridge
- ❑ Clean the printer
- ❑ Transport the printer
- ❑ Calibrate the printer.

Cleaning the Print Head

The printer periodically cleans the print head automatically, so normally you should not need to manually run a cleaning cycle. However, if print quality diminishes, run the print head cleaning cycle to unclog the print head so the nozzles deliver ink properly.

The cleaning cycle takes about one minute, during which the carriage moves and you hear the printer recharging the print head. The Pause light flashes throughout the cleaning cycle and then stays on when the cycle is finished.

Follow these steps to clean either print head:

1. Make sure the printer is turned on and press the Pause button.
2. Hold down the Alt button and press Pause. The cleaning cycle begins.
3. When the cleaning cycle is done, press the Pause button to resume printing.

After you clean the print head, turn off the printer; then hold down the Alt button as you turn the printer back on. This prints a demonstration page so you can see if your print quality has improved. (After the page prints, the Pause light comes on; turn off the printer to exit demonstration mode.)

It can sometimes take up to five cleaning cycles to improve print quality. If the print quality does not improve after you clean the print heads five times (printing a demonstration page to check after each cycle), contact your dealer or authorized EPSON servicer.

To clean the other print head, replace the one currently installed (as described below). Then repeat the steps in this section.

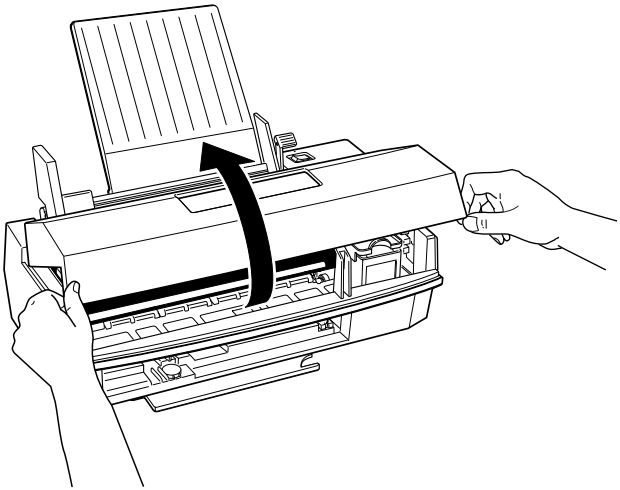
Replacing the Print Head Unit

When you need to switch between color and monochrome printing, follow the instructions in this section to remove one print head unit and replace it with the other.

Caution:
When you switch between print heads, always leave the ink cartridges installed in the print head unit. Once you remove an ink cartridge from its print head unit, it becomes unusable.

1. Make sure the printer is turned on and press the Pause button. The Pause light comes on.

2. Open the printer cover by lifting the edges on both sides.



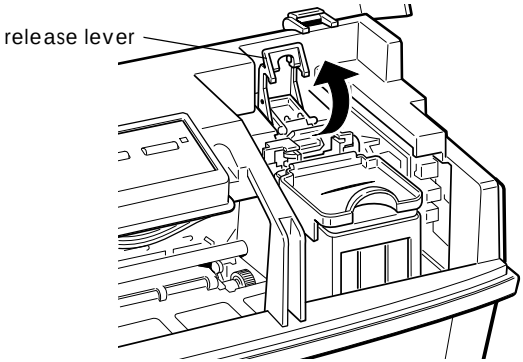
Warning:
Never insert your hand in the paper path behind the center of the cover; you may damage the printer or injure your hand.

3. Hold down the Alt button for about five seconds until the print head moves slightly left, to the ink cartridge install position. The Pause light begins flashing.

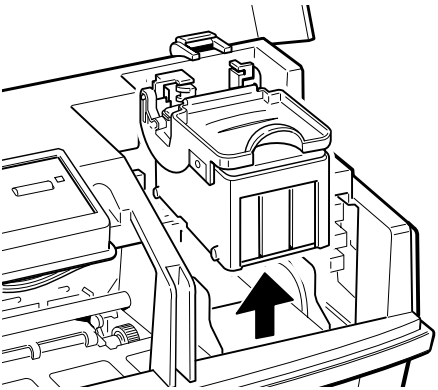
Caution:
Never move the print head unit by hand; always use the Alt *button to move it.*

4. Raise the blue print head unit release lever as far as it will go.

Caution:
Do not lift up the ink cartridge clamp; the ink cartridge and print head become unusable.

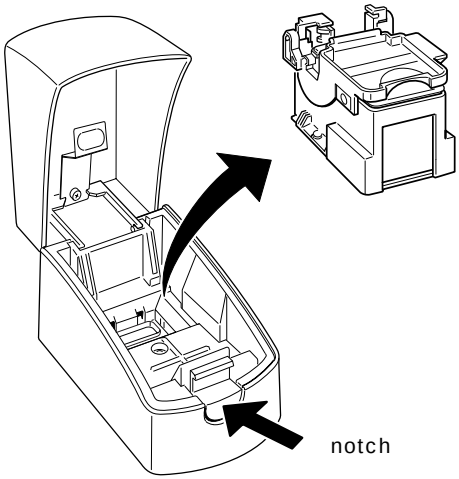


5. Grasp both sides of the print head unit and carefully lift it out of the printer. Place the unit on a flat, clean surface.

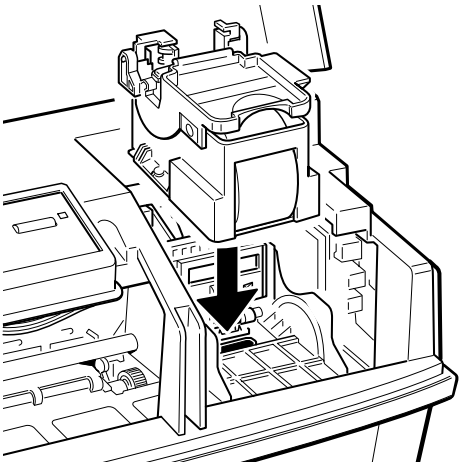


Caution:
Do not touch the electrical contacts on the back and bottom of the print head unit or inside the printer; you may damage them.

6. Remove the other print head unit from its storage box by pressing the notch as shown.



7. Carefully insert the print head unit into the printer with the electrical contacts and the print head facing the back of the printer, as shown.



8. When the print head unit is fully seated, press the blue lever down until it clicks into place.

Caution:
If the Error *and* Pause *lights start flashing, remove the print head unit (beginning with step 4) and reinsert it.*

9. Press the Alt button to return the print head to its home position. (Even if you do not press Alt, the printer moves the print head back to its home position about 60 seconds after you close the clamp.)

10. Place the print head unit you removed in the storage box. Always store the unused print head unit in this box to protect its delicate components.

11. When the Pause light stops flashing, press the Pause button.

12. Close the printer cover.

Replacing an Ink Cartridge

The printer's Error light tells you when an ink cartridge is low on ink and when you need to replace the cartridge. If the Error light flashes, the cartridge is low on ink. If the printer stops, the Pause light comes on, and the Error light flashes rapidly, the cartridge is empty.

Before replacing a cartridge, try cleaning the print head as described on page 3-2.

Caution:
Do not replace an ink cartridge unless the Error *light tells you to. If you replace a cartridge before the light flashes, the sensor that tells you when ink is out will not work with the new cartridge.*

Leave the old cartridge installed in the printer until you are ready to replace it with a new one. Attempting to print without a cartridge installed can damage the printer.

When you discard your used ink cartridge, always remove it from the print head unit first. Do not discard the print head unit.

Once you install an ink cartridge, do not open the clamp or remove the cartridge except to replace it with a new one. Once you remove a cartridge, you cannot reuse it.

Selecting the Correct Ink Cartridges

Use only these EPSON ink cartridges:

Black ink cartridge	S020047
Color ink cartridge	S020049

When you need new ink cartridges, contact your dealer or call EPSON Accessories at (800) 873-7766 (U.S. only). In Canada, call (800) BUY-EPSON for sales locations.

Caution:
Use only genuine EPSON cartridges and do not refill them. Other products may cause damage not covered by EPSON's warranty.

Removing and Installing an Ink Cartridge

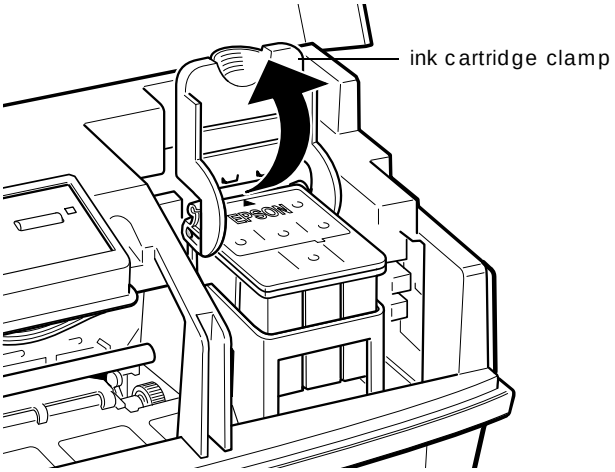
Follow these steps to replace an ink cartridge:

1. Make sure the printer is on and the Error light is flashing.
2. Press the Pause button; the Pause light comes on.
3. Open the printer cover by lifting the edges on both sides.
4. Hold down the Alt button for about five seconds until the print head moves slightly left, to the ink cartridge install position. The Pause light begins flashing.

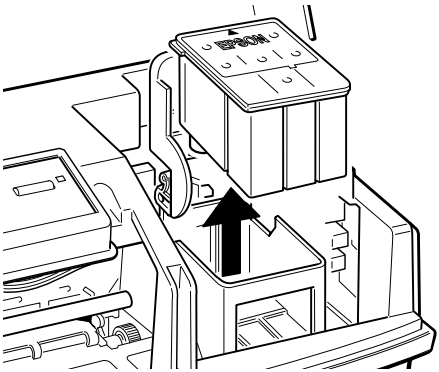
   The carriage returns to the home position after 60 seconds if the ink cartridge is not removed.

   Caution:
   Never move the print head by hand; always use the Alt *button to move it.*

5. Raise the ink cartridge clamp to open it. The cartridge rises partially out of the printer.

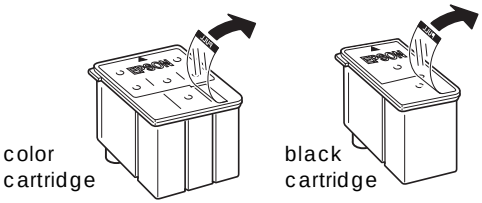


6. Lift the cartridge out of the printer and dispose of it carefully so any excess ink does not spill out. Do not take the used cartridge apart or try to refill it.



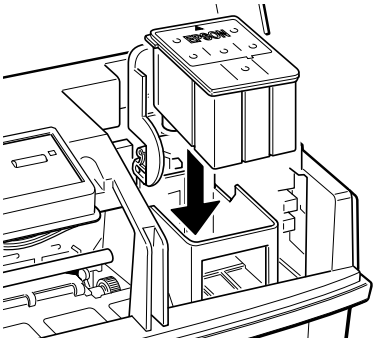
Warning:
If ink gets on your hands, wash them thoroughly with soap and water. If ink gets into your eyes, flush them immediately with water.

7. Open the package containing the ink cartridge and remove the cartridge from its foil wrapper. Remove the tape seal from the top of the cartridge.

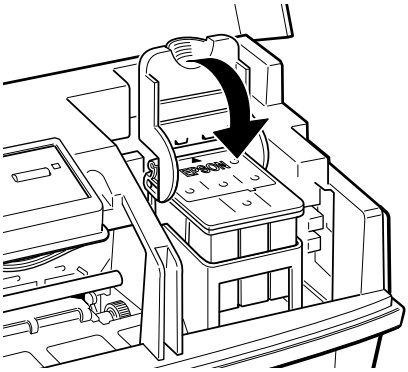


Caution:
You must remove the tape seal from the top of the cartridge; leaving the tape on will permanently damage it. Do not remove the clear tape seal from the bottom of the cartridge; ink will leak out.

8. Lower the ink cartridge into the print head unit with the label facing up and the arrow on the top of the cartridge pointing toward the back of the printer.



9. Press down the ink cartridge clamp until it locks in place. You will feel some resistance.



Caution:
Once you install an ink cartridge, do not open the ink cartridge clamp again or remove the cartridge except to replace it with a new one. Once you remove a cartridge, do not reuse it. Reusing a cartridge that has been removed may damage the print head.

10. Press the Alt button again to return the print head to its home position. (Even if you do not press Alt, the printer moves the print head back to its home position about 60 seconds after you close the clamp.)

    The Pause light flashes as the printer charges the ink delivery system.

11. Close the printer cover. When the charging cycle finishes, the Pause light stops flashing and stays on. Press the Pause button to turn off the light and resume printing.

Caution:
Never turn off the printer while the Pause *light is flashing.*

When you discard an ink cartridge, always remove it from the print head unit first. Do not discard the print head unit.

Use only genuine EPSON ink cartridges and do not refill them. Other products may cause damage not covered by EPSON's warranty.

In order to maintain optimum print quality, the printer periodically performs a cleaning operation. You may notice the cleaning cycle being performed when the printer has been on for a while without being used or when you turn on the printer after it has been off for a while.

You may also need to manually activate a cleaning cycle if you notice a decline in print quality. See page 3-2 for more information.

Cleaning the Printer

If you want to clean the printer, follow these steps:

1. Turn off the printer and disconnect any cables connected to it. Be sure to keep the printer cover closed as you clean it.

2. Remove any paper or other media from the sheet feeder.

3. Carefully clean away loose dust and dirt with a soft brush.

4. Clean the exterior of the printer with a soft cloth dampened with mild detergent.

5. To clean ink out of the printer's interior, wipe it gently with a damp cloth.

Caution:
Never use alcohol or thinner to clean the printer; these chemicals can damage the components and the printer case.

Do not use a hard or abrasive brush; these can scratch the printer surfaces.

Do not allow water to get on the printer mechanism or any electronic components.

Do not touch the gears inside the printer.

Do not spray inside the printer with lubricants or oils; they can damage the printer mechanisms.

Transporting the Printer

If you need to transport your printer, carefully repack it in the original box and packing materials as follows:

1. Turn off the printer, if you have not already done so.

2. Open the printer cover and make sure that the print head is locked in the far right position. If it isn't, turn on the printer, wait about 10 seconds, and turn it off.

   Caution:
   Do not remove the ink cartridges when transporting the printer. Transporting the printer without the cartridges installed can damage the printer.

3. Use a strong adhesive tape to secure the print head to the side of the printer.

4. Unplug the power cord from the electrical outlet.

5. Disconnect the interface cable from the printer.

6. Remove any paper from the sheet feeder and remove the paper support.

7. Push in the output tray extension and rotate the output tray until it is beneath the printer.

8. Attach the protective materials to the printer. See the Notice Sheet that was packed with the printer.

9. Repack the printer and attachments in the original box.

Be sure to keep the printer flat as you transport it. If you notice problems with the printed image after transporting the printer, clean the print head as described on page 3-2. If the printed image is misaligned, calibrate the printer as described in the next section.

Calibrating the Printer

Your printer has been calibrated at the factory so that vertical lines in your text and graphics are properly aligned. If you notice misaligned images in printouts, however, you can calibrate the printer with the Bi-D Calibration Utility. You may need to do this after moving the printer to a new location, for example.

You can copy the Bi-D Calibration Utility from the Windows printer driver diskette to your hard disk, or run it from the diskette when needed. You calibrate the printer twice—once with the monochrome print head installed and once with the color print head installed. Follow these steps:

1. If you did not install the Bi-D Calibration Utility on your hard disk, insert the driver diskette in your computer's diskette drive.

2. Make sure Windows is running.

3. To start the Bi-D Calibration Utility using Windows 3.1 Program Manager, choose Run from the File menu. The Run dialog box appears.

   To start it using Windows 95, click Start; then choose Run.

4. In the Command Line box (Windows 3.1) or the Open field (Windows 95) type the drive and directory name where the utility is located. For example, type A:CALIBRAT (or C:*directory*\CALIBRAT if it is on your hard disk). Then choose OK.

5. When you see the Calibration Utility screen, verify that Stylus COLOR IIs is selected as the printer for calibration. If it isn't, use ↑ or ↓ to select it.

   Also make sure Print Calibration Pattern is selected at the bottom of the screen. (Use the Tab key to move down and ↑ to select it, if necessary.)

6. Press Enter to select Calibrate. The printer starts calibrating.

7. The next screen prompts you to enter an offset value to align the print head.

   Wait for 1 minute while the printer prints a page of multiple patterns of vertical lines, each of which is assigned an offset value. Look for the pattern that is most closely aligned.

8. Enter the offset value of the pattern that is most closely aligned and press Enter. The printer prints another sheet to verify that the alignment is correct.

9. If the vertical lines on the sheet are aligned, select Done. If the lines are not aligned, select Re-calibrate; then press Enter to repeat the calibration.

If you notice later that the vertical alignment of your printed pages is off, repeat the calibration procedure.

Chapter 4

Troubleshooting

Print Quality Problems 4-3

Problems with Printing 4-7

Paper Handling Problems 4-12
- Paper Jam Problems 4-12
- Paper Feeding Problems 4-12
- Other Paper Handling Problems 4-13

4

This chapter describes what you can do if you are having problems printing. It is divided into these sections:

- **Print quality problems**. See this section if the print quality is not good or not what you expect.
- **Problems with printing**. See this section if your printer is having trouble printing.
- **Paper handling problems**. See this section if you have paper jams or other problems with paper handling.

Check the table below to read the status of the control panel lights and help you identify the problem.

Problem	Control panel light status			
	Error	Condensed	Economy	Pause
Ink low	Flashing	Off	Off	Off
Ink out	Flashing	Off	Off	On
Paper out	On	Off	Off	On
Paper jammed	Off	Off	Flashing	On
Print head unit or ink cartridge installation error	Flashing	Off	Off	Flashing
Carriage error	Flashing	Flashing	Off	Flashing
Fatal error	Flashing	Flashing	Flashing	Flashing

If you have a printing problem, check the appropriate section and follow all suggestions that apply to your problem. Also check the ReadMe icon in the EPSON program group for the latest information. If none of the suggested solutions solve your problem, see “Where to Get Help” in the Introduction.

Print Quality Problems

To help you determine the nature of the problem, you may want to print a demonstration page and analyze the elements on it. See Chapter 2 for instructions.

Print quality problems can often be solved by cleaning the print head as described earlier in this chapter. Note that it may take as many as five cleaning cycles to solve a print quality problem. If cleaning the print head does not improve the print quality, try the following:

- ❑ Check the status of the Error and Pause lights to see whether the ink cartridge is low on ink or is empty. If so, replace the cartridge as described in Chapter 3.
- ❑ For color or complex grayscale images, turn on MicroWeave and turn off High Speed mode.
- ❑ Use a higher quality paper. For best print quality, use EPSON special coated papers for 360 and 720 dpi or EPSON high-quality glossy paper (720 dpi only).

  Note:
  Do not use high-quality glossy paper when you print at 360 dpi.

- ❑ Make sure the Media Type setting matches the type of paper or other media loaded in the printer.
- ❑ If you're printing a scanned image and the colors are not right, first try to fix the problem using your scanning software program.

If print quality does not improve, see the following specific problems.

Printed output is not what you expect or is faint or blurred.

You may not be printing on the correct side of the paper. On coated paper, print only on the white coated side; on glossy paper or transparencies, print only with the cut corner facing the right side of the sheet feeder. If you're not sure which side is the printable surface, test both sides to determine which side gives you the best print quality. Also remove each sheet as it is printed to prevent smearing by the next sheet.

Check that the paper thickness and thickness adjustment levers are set correctly for the media type. (See "Setting the Paper Thickness and Adjustment Levers" in Chapter 1 for more information.) Faint or blurred printouts can result if you print on plain paper or labels with these levers in incorrect positions.

Use a higher quality paper. Also, check that the Media Type setting in the driver is set for the type of paper or other media you loaded. If you are using 720 dpi resolution, you get better results if you use EPSON special coated paper for 720 dpi or EPSON high-quality glossy paper.

Check whether economy printing mode is on. To turn off this mode, press the Alt and Load/Eject buttons as described in Chapter 2 until the Economy mode is turned off.

Turn on non-smear printing mode, if necessary, as described in Chapter 2.

Check whether your paper is moist or damp. Ink jet printers are sensitive to moisture absorbed by paper. Do not store paper in damp or humid places.

If you are printing color graphics at 360 or 720 dpi, make sure MicroWeave is on and High Speed mode is off. Check that the Brightness and Contrast settings are appropriate for the image.

Make sure the correct print head is selected in the printer driver. Select Color Head Unit for the color print head and Monochrome Head Unit for monochrome.

Try using the printer driver's Automatic feature to let the driver determine the appropriate image settings.

Your Windows video driver might not be compatible with the printer. Use the standard Windows VGA driver or contact the manufacturer of your video card for an updated driver. For information on changing the video driver, see your Windows documentation.

Clean the print head as described earlier in this chapter.

Replace the ink cartridge.

Vertical lines do not align.

Calibrate your printer as described in Chapter 3.

You see white banding in your printed output.

Turn on MicroWeave in the printer driver. If you still see white banding, clean the print head as described earlier in this chapter. You may need to run two or three cleaning cycles.

The printout contains incorrect or garbled characters.

Make sure EPSON Stylus COLOR IIs is selected as the default Windows printer driver.

If you are running Windows, make sure the Print Manager is turned off in the Control Panel Printers utility; see your Windows documentation or online help for instructions.

Print jobs may be held in the EPSON Spool Manager. Select any print jobs marked pending, waiting, or held; then select Delete or Cancel Printing.

If you still see incorrect or garbled characters, try printing a demonstration page to see if the problem is with your printer; see Chapter 2 for instructions. If the demonstration page prints, you may have a problem with your application software or your printer cable. Make sure your cable is connected securely and see your program's documentation for troubleshooting information. If no demonstration page prints, you may have a problem with your printer; contact your EPSON dealer or authorized EPSON servicer.

You see incorrect colors in your printout.

Make sure EPSON Stylus COLOR IIs is selected as the default Windows printer driver.

Check that the printer driver's Brightness and Contrast settings are appropriate for the image.

If you scanned the image, the different color interpretation technologies used by your scanner, monitor, and printer can never produce an exact color match with the original image. However, check your scanner documentation for utilities you can use to calibrate your scanner to your monitor and printer to more closely match colors.

If you are printing from a DOS application using economy mode, black text or graphics will appear gray on your printout; turn off economy mode to achieve deeper blacks.

Printing starts too high or too low on the page, or the page length or margins are not what you expect.

Make sure you selected the correct Paper Size option in the printer driver; see Chapter 2 for instructions.

Use your software program to adjust the margins, or change the number of lines per page, or change the page length setting to match the paper you are using.

If necessary, change the loading position of the paper using the Default setting mode as described in Chapter 2.

Problems with Printing

If you cannot get the printer to print, first check that paper is loaded in the printer. Then check that the printer is plugged into a working electrical outlet that is not controlled by a switch or timer. Verify that the interface cable is securely connected to the printer and computer.

After you have done all this, see the following specific problems.

Printing stops and the Error *and* Pause *lights are on.*

No paper is loaded in the printer. Load paper in the sheet feeder; then press the Pause button to turn the Pause light off and resume printing.

Printing stops and the Economy *light is flashing, but the* Error *light is off.*

Paper may have jammed in the printer. Turn off the printer and gently pull out the paper. If it tears and remains inside the printer, open the printer cover and remove the paper. See "Paper Handling Problems" later in this chapter for information on preventing paper jams.

The Error *light is flashing.*

The ink cartridge is low on ink; replace the ink cartridge as described in Chapter 3.

Printing stops and the Error, Condensed, *and* Pause *lights are flashing.*

There is a carriage error. Turn off the printer; then, after a few seconds, turn it on and try printing again. If the same lights flash again, contact your dealer or an authorized EPSON servicer.

Printing stops and all lights are flashing (except the Power *light).*

There is a fatal error; contact your dealer or an authorized EPSON servicer.

The Error *and* Pause *lights flash.*

You may have pressed the Alt button when the ink cartridge or the print head unit was not installed or not installed correctly. Check the installation steps in Chapter 3 to reinstall the ink cartridge or print head unit.

The printer sounds like it is printing, but nothing prints.

The print head may need cleaning. See Chapter 3 for instructions.

The ink cartridge may be too old. A cartridge is too old if it has been used longer than six months or beyond the date on its packaging. First clean the print head as described earlier in this chapter. If this does not solve the problem, replace the ink cartridge.

The cable between the printer and computer may not meet the specifications for the printer or computer. See "System Requirements" in the *Setup Guide* for cable guidelines.

Turn off the printer and perform a self test as described in Chapter 1 of the *Setup Guide*. If the self test does not print, the problem is with the printer. If the self test prints correctly, the problem is probably caused by your software.

The printer driver installed with Windows 3.1 does not work correctly after you upgrade to Windows 95.

You need to reinstall the printer driver after upgrading to Windows 95 so the driver is set up correctly for Windows 95. See the *Setup Guide* for instructions.

You see error messages because of printing conflicts.

Before sending print jobs to the printer, the EPSON Spool Manager stores them in a temporary directory. If you see conflict error messages or printing is very slow, the problem may be caused by other temporary files in this directory. To change the EPSON Spool Manager default directory, follow these steps:

1. Make a directory on your hard disk where you would like the Spool Manager to place the files, for example, C:\SPLTEMP.

2. Open the EPSON program group and double-click the Spool Manager icon.

3. Make sure Stylus COLOR IIs is selected, and then open the Queue menu.

4. Select Setup. In the Queue Setup dialog box, change the spool directory to the one you created in step 1.

5. Also make sure the Use Print Manager for this port checkbox is checked. Then select OK.

6. Open the Options menu and select Default Spool Directory.

7. In the dialog box, change the spool directory to the one you created in step 1. Then select OK.

8. Close the Spool Manager.

The printer prints blank pages.

Make sure EPSON Stylus COLOR IIs is selected as the default Windows printer driver.

Make sure you selected the correct Paper Size option in the printer driver; see your *Setup Guide* for instructions. Also make sure the margins you selected in your application software fit the paper size you're using.

Text printing is slow.

You may be using printer driver settings that are more suitable for graphics printing and unnecessarily slowing down text printing. First make sure Monochrome print head is installed in your printer and selected in the printer driver.

To speed up text printing only, turn off MicroWeave mode and turn on High Speed mode. Some combinations of Printing Mode (resolution) and Media Type do not allow you to select these settings; if this is the case for your settings, select a lower resolution, possibly using 180 dpi for drafts and 360 dpi for your final output. However, do not turn off MicroWeave when printing final copies of high-quality graphics or photographs.

Ink cartridges do not last as long as expected.

The ink cartridge life depends on the amount of ink used in printing. If you often print pages with large graphics and dense text with little white space, you will use up cartridges faster than if you print pages with lots of white space.

The printer also uses ink during print head cleaning operations, so do not perform them unless necessary.

If you replace an ink cartridge before the Error light flashes, the sensor that tells you when ink is out will not work with the new cartridge.

The printer does not seem to receive print jobs sent by the computer.

Release any print jobs that may be held in the EPSON Spool Manager. Start Spool Manager and click any job marked pending or held. Then open the Document menu and select Delete. Verify that the EPSON Stylus COLOR IIs print queue is not held, open the Queue menu and click Hold if there is a check mark beside the option.

Make sure EPSON Stylus COLOR IIs is selected as the default Windows printer driver.

If you still get no output, try printing a demonstration page to see if the problem is with your printer; see Chapter 2 for instructions. If no demonstration page prints, you may have a problem with your printer; contact your EPSON dealer or authorized EPSON servicer.

If the demonstration page prints, you may have a problem with your application software or your printer cable. Make sure your cable is connected securely and see your program's documentation for troubleshooting information. You can use the printer's hex dump mode to pinpoint communication problems between the printer and a software program. To turn on hex dump mode, first turn off the printer. Then hold down the Load/Eject and Pause buttons, turn on the printer, and send a print job. The printer prints the exact codes it receives from the computer in hexadecimal format. Report the codes to your support technician.

Paper Handling Problems

This section describes how to prevent paper jams inside your printer and ensure that paper feeds properly.

Paper Jam Problems

If paper jams inside the printer frequently, try the following:

- ❑ Use a higher quality paper that is suitable for ink jet printers and is not too thin, too thick, or rough. For best quality, use EPSON special coated and high-quality glossy papers. See Chapter 1 for more information about loading paper and Appendix A for paper specifications.
- ❑ Fan the stack of paper before you load it.
- ❑ Do not load too many sheets in the sheet feeder. You can load up to 100 sheets of plain paper, 70 sheets of special coated paper, 10 envelopes, 50 sheets of transparency film (with one sheet of plain paper beneath the stack), or 30 sheets of high-quality glossy paper (with one sheet of plain paper beneath the stack).
- ❑ If you loaded plain paper, try turning the stack over. The printable side may have been facing down.

Paper Feeding Problems

If paper is not feeding properly, the most likely causes are the following:

- ❑ Paper is curled or folded. Use flat, undamaged paper.
- ❑ The paper is of poor quality; use a better quality paper.
- ❑ The paper is too thin or thick; see Appendix A for paper size and type specifications.

- ❑ The paper was exposed to excess humidity, over 60%. See Appendix A for specifications on required environmental conditions.

- ❑ The edge guides are too tight or too loose. Adjust the left edge guide for the size of the paper.

- ❑ Too many sheets are loaded in the sheet feeder. You can load up to 100 sheets of plain paper, 70 sheets of special coated paper, 10 envelopes, 50 sheets of transparency film (with one sheet of plain paper beneath the stack), or 30 sheets of high-quality glossy paper (with one sheet of plain paper beneath the stack).

Other Paper Handling Problems

If you have other paper handling problems, see the following suggestions.

The printer loads more than one sheet at a time.

Remove the stack of paper and fan it. Tap it on a flat surface to even the edges. Then reload the paper.

The paper is too thin or thick, or was exposed to excess humidity; see Appendix A for exact specifications.

Make sure the paper thickness and thickness adjustment levers are set correctly for your media type; see Chapter 1 for instructions.

Make sure the printer driver's Copies setting and the copies setting in your application software are set to print one copy at a time. Also verify that you have selected the correct paper size in the driver and in your application software.

Ejected paper is wrinkled.

The paper is too thin or damp. Do not store paper in damp or humid places.

Paper does not fully eject.

Use the Load/Eject button to eject the page.

The paper may be too long. Use paper that is within the specified size. See Appendix A for exact specifications.

Paper is feeding crooked.

The paper is old or creased. Use only new, smooth sheets of paper.

Too much paper is loaded in the sheet feeder. Remove a few sheets.

The paper is not the proper size and quality; see Appendix A for exact specifications.

Appendix A

Technical Specifications

A

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Printing

Printing method: On-demand ink jet

Nozzle configuration: 64 monochrome (black) nozzles
(16 × 4 staggered)
60 color nozzles
(20 × 3, cyan, magenta, yellow)

Printable columns and printing speed (color, letter-size paper)*:

Character pitch (characters per inch)	Printable columns	Printing speed (characters per second)	
		Monochrome	Color
10	80	125	170
12	96	150	204
15	120	188	255
17 (10 condensed)	136	214	290
20 (12 condensed)	160	250	340

* Print speeds vary depending on system configuration, software application, resolution, and amount of page covered.

Resolution: Maximum 360 dpi on a 720 × 720 dpi matrix. Dots are printed in an alternating pattern in which horizontal and vertical dots are non-contiguous. Contiguous printing of dots is available only on the diagonal, which yields an effective resolution greater than 360 dpi.

Paper feed speed: 102 milliseconds per 1/6-inch line

Input buffer: 0.5KB to 15KB depending on monochrome / color head unit selection

Print direction: Bidirectional with logic seeking for text and graphics; unidirectional and autodirectional modes available in Default setting mode

Control code: ESC / P 2 and expanded raster graphics code

Paper feeding: Auto sheet feeder

Line spacing:	1/6-inch, 1/8-inch, programmable in 1/360-inch increments
Character tables:	1 Italic and 8 graphics character tables
Character sets:	14 International and 1 legal character sets

Paper

Note:
Since the quality of any particular brand or type of paper may be changed by the manufacturer at any time, EPSON cannot guarantee the use of any particular brand or type of paper. Always test samples of paper stock before purchasing large quantities or printing large jobs.

Paper path:	Sheet feeder, top entry
Paper support / sheet feeder:	100 sheets of plain paper at 17 lb (64 g / m^2) 10 envelopes 50 transparency films with one sheet of plain paper beneath the stack and printed one page at a time 70 sheets of EPSON special coated paper 30 sheets of EPSON high-quality glossy paper with one sheet of plain paper beneath the stack or single sheet loaded and printed one page at a time
Paper size:	Letter (8.5 × 11 inches) A4 (210 × 297 mm) Legal (8.5 × 14 inches) Statement (8.5 × 5.5 inches) Executive (7.5 × 10 inches)
Paper types:	Plain paper and special papers distributed by EPSON (high-quality glossy paper, special coated paper, and transparencies)
Paper thickness:	0.003 to 0.004 inch (0.08 to 0.11 mm)
Paper weight:	17 to 24 lb (64 to 90 g / m^2) Use 24 lb (90 g / m^2) paper under normal temperature and humidity conditions.

Envelopes:

Size	No. 10	9.5 × 4.1 inches (240 × 104 mm)
	DL	8.7 × 4.3 inches (220 × 110 mm)
Paper types	Plain, bond, or air mail paper	
Paper thickness	0.006 to 0.02 inch (0.16 mm to 0.52 mm)	
Paper weight	12 to 24 lb (45 to 90 g / m^2)	

Transparencies:

Size	A4	(210 × 297 mm)
	Letter	(8.5 × 11 inches)
Thickness	0.003 to 0.0033 inch (0.075 to 0.085 mm)	

Note:
Poor quality paper may reduce print quality and cause paper jams and other problems. If you encounter problems, switch to a higher grade of paper.

Print on special coated paper, high-quality glossy paper, envelopes, and transparencies only under these normal conditions:

Temperature:	*59 to 77°F (15 to 25°C)*
Humidity:	*40 to 60% RH*

(High-quality glossy paper can be stored at 20 to 60% relative humidity.)

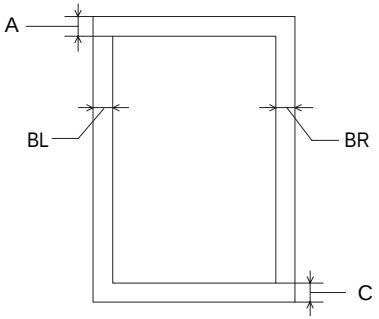
Do not load curled or folded paper, envelopes, or transparencies.

The following EPSON genuine papers are available:

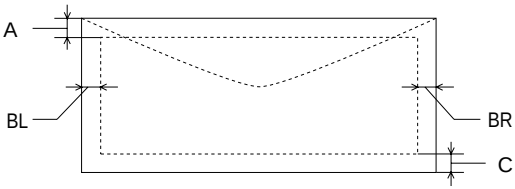
Special coated paper for 720 dpi printing (Letter)	*S041062*
Special coated paper for 720 dpi printing (Legal)	*S041048*
Special coated paper for 360 dpi printing (Letter)	*S041060*
High-quality glossy paper (Letter)	*S041072*
Transparency film (Letter)	*S041064*

Printable area:

Single sheets



Envelopes



A The minimum top margin is 0.12 inch (3.0 mm).

BL The minimum left margin is 0.12 inch (3.0 mm).

Note: When printing multiple sheets of glossy paper, the minimum top margin is 1.2 inches (30 mm).

BR The minimum right margin is:
0.12 inch (3.0 mm) for Statement and Executive paper, and Transparencies
0.38 inch (9.7 mm) for Letter and Legal paper, and transparencies
0.15 inch (3.8 mm) for A4 paper
0.54 inch (13.8 mm) for DL envelopes
1.38 inches (35.1 mm) for #10 envelopes

C The minimum bottom margin is 0.54 inches (14.0 mm).

Note:
Always load paper into the sheet feeder short edge first except envelopes. Load envelopes long edge first.

Ink Cartridges

Black ink cartridge (S020047):

Color	Black
Print capacity*	540 pages (A4 paper; text)
Cartridge life	2 years from production date and up to 6 months after opening the package at 77°F (25°C).
Temperature	Storage: –4 to 104°F (–20 to 40°C) 1 month at 104°F (40°C) Transit: –22 to 140°F (–30 to 60°C) 1 month at 104°F (40°C) 120 hours at 140°F (60°C) Freezing:** 24.8°F (–4°C)
Dimensions	1.8 inches (W) × 2.3 inches (D) × 1.5 inches (H)

Color ink cartridge (S020049):

Colors	Cyan, magenta, and yellow
Print capacity*	320 pages (A4 paper; 360 dpi; 5% each color)
Cartridge life	2 years from production date and up to 6 months after opening the package at 77°F (25°C).
Temperature	Storage: –4 to 104° F (–20 to 40°C) 1 month at 104°F (40°C) Transit: –22 to 140°F (–30 to 60°C) 1 month at 104°F (40°C) 120 hours at 140°F (60°C) Freezing:** 24.8°F (–4°C)
Dimensions	1.7 inches (W) × 2.2 inches (D) × 1.5 inches (H)

* The print capacity may vary depending on how often you use the print head cleaning function. Also, if you print large graphics and dense text with little white space, you use ink faster.

** The ink thaws and is usable after approximately 3 hours at 77°F (25°C).

Caution:
Use only genuine EPSON cartridges and do not refill them. Other products may cause damage not covered by EPSON's warranty.

Do not use an ink cartridge after the expiration date on the package.

Mechanical

Paper feed method:	Friction with auto / manual sheet feeder, top entry
Total print volume:	25,000 pages
Dimensions:	Without paper support and output tray Width 15.6 inches (396.7 mm) Depth 8.1 inches (205.6 mm) Height 5.7 inches (144.0 mm) With paper support and output tray Width 15.6 inches (396.7 mm) Depth 20.8 inches (528.5 mm) Height 10.5 inches (267.3 mm)
Weight:	8.6 lb (3.9 kg) without the ink cartridge and print head unit

Electrical

Input voltage range:	103.5 to 132 V
Rated frequency range:	50 to 60 Hz
Input frequency range:	49.5 to 60.5 Hz
Rated current:	0.5A
Power consumption:	Approx. 13 W (during self test printing at 10 cpi)

Environmental

Temperature:	Operation	50 to 95°F (10 to 35°C)
	Storage*	–4 to 140°F (–20 to 60°C) 1 month at 104°F (40°C) 120 hours at 140°F (60°C)
Humidity:	Operation	20 to 80% RH
	Storage*	5 to 85% RH (without condensation)

* Stored in shipping container

Safety Approvals

Safety standards:	UL 1950 with D3, CSA 22.2 950 with D3
R.F.I.:	FCC part 15 subpart B class B CSA C108.8

Fonts

The printer comes with an installed set of fonts as described and shown in the tables below. However, the printer always uses the fonts you select with your software program. The only time you need to select the printer's installed fonts is when your software program does not allow you to select fonts.

You can select other font and pitch combinations using ESC/P 2 commands, as described in Appendix B.

Scalable fonts

Fonts	Minimum point size	Maximum point size	Increments
EPSON Roman	8	32	2
EPSON Sans Serif	8	32	2
EPSON Roman T	8	32	2
EPSON Sans Serif H	8	32	2

Bitmap fonts

Fonts	10 cpi	12 cpi	15 cpi	Proportional
EPSON Roman	√	√	√	√
EPSON Sans Serif	√	√	√	√
EPSON Courier	√	√	√	N/A

Font samples

EPSON Roman-T ABCDEFGhijklmn0123456789

EPSON Sans Serif H ABCDEFGhijklmn0123456789

EPSON Roman ABCDEFGhijklmn0123456789

EPSON Courier ABCDEFGhijklmn0123456789

EPSON Sanserif ABCDEFGhijklmn0123456789

EPSON Prestige ABCDEFGhijklmn0123456789

EPSON Script *ABCDEFGhijklmn0123456789*

Interface Specifications

Your printer is equipped with an 8-bit parallel interface.

Data format:	8-bit parallel, IEEE P1284 compatible mode
Synchronization:	$\overline{\text{STROBE}}$ pulse
Handshake timing:	BUSY and $\overline{\text{ACKNLG}}$ signals
Signal level:	TTL compatible
Connector:	36-pin Centronics connector or equivalent

Pin Assignments

Signal pin	Return pin	Signal	Direction	Description
1	19	$\overline{\text{STROBE}}$	IN	$\overline{\text{STROBE}}$ pulse to read data.
2 3 4 5 6 7 8 9	20 21 22 23 24 25 26 27	DATA 1 DATA 2 DATA 3 DATA 4 DATA 5 DATA 6 DATA 7 DATA 8	IN IN IN IN IN IN IN IN	These signals represent information in bits 0 to 7 of parallel data respectively. Each signal is at HIGH level when data is logical 1 and LOW when it is logical 0.
10	28	$\overline{\text{ACKNLG}}$	OUT	About a 5-µs pulse. LOW indicates data has been received and the printer is ready to accept more data.
11	29	BUSY	OUT	A HIGH signal indicates the printer cannot receive data. The signal goes HIGH in the following cases: 1) During data entry (for each character) 2) During initialization 3) During self test, demonstration, and default setting printing 4) During a printer-error state
12	28	PE	OUT	A HIGH signal indicates the printer is in a paper-out state or in an error state.
13	28	SLCT	OUT	Pulled up to +5 V through 1 kΩ resistance
14	30	AFXT	IN	Not used
15	-	NC	-	Not used
16	-	GND	-	Logic ground level
17	-	CHASSIS GND	-	Printer's chassis ground, which is connected to the logic ground
18	-	Logic H	OUT	Not used
19-30	-	GND	-	Twisted-pair return signal ground level

Signal pin	Return pin	Signal	Direction	Description
31	30	$\overline{\text{INIT}}$	IN	When this signal goes LOW, the printer controller is reset to its default state when the power is first turned on and the print buffer is cleared. This level is normally HIGH; its pulse width must be more than 50 µs at the receiving terminal.
32	29	$\overline{\text{ERROR}}$	OUT	This signal level goes LOW when the printer: 1) Is out of paper 2) Is in an error state 3) Has no ink cartridge installed
33	-	GND	-	Same as for Pins 19-30
34	-	NC	-	Not used
35	-	+5 V	OUT	Pulled up to +5 V through 1 KΩ resistance
36	30	SLIN	IN	Not used

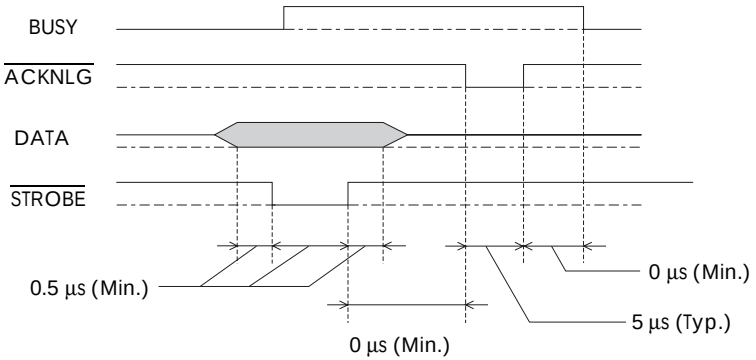
Notes:
The column heading "Direction" refers to the direction of signal flow as viewed from the printer.

"Return pin" denotes the twisted-pair return pin to be connected at signal ground level. For the interface wiring, be sure to use a twisted-pair cable for each signal and to complete the connection on the return side.

All interface conditions are based on TTL level. Both the rise and fall times of each signal must be less than 0.2 microseconds.

Data transfer must be carried out by observing the $\overline{\text{ACKNLG}}$ or BUSY signal. Data transfer to this printer can be carried out only after receipt of the $\overline{\text{ACKNLG}}$ signal or when the level of the BUSY signal is LOW.

Timing Chart



Transition time (both the rise and the fall) of every signal must be less than 0.2 µs.

Initialization

The printer can be initialized (returned to a fixed set of conditions) in these ways:

Hardware initialization	* The printer is turned on * The printer receives an $\overline{\text{INIT}}$ signal from the parallel interface: pin 31 goes LOW
Software initialization	* Software sends the ESC @ (initialize the printer) command; the last panel settings are kept
Control panel initialization	* Hold down the Alt button and press the Pause button (buffer clear); the last panel settings are kept

All three initialization methods reset the font according to the default settings selected using the control panel. However, ESC @ does not initialize the printer mechanism, clear the input data buffer, or clear the user-defined character set. The control panel initialization does not initialize the printer mechanism or clear the user-defined character set.

Default Settings

The table below shows the default settings that take effect when the printer is initialized.

Item	Default setting
Top-of-form position	Current paper position
Page length	Single sheets: 61 lines for letter-size paper 65 lines for A4-size paper
Left and right margins	Cancelled
Line spacing	1/6-inch line spacing
Character pitch	Last font selected using default setting
Vertical tab position	Cleared
Horizontal tab positions	Every eight characters
Font selection	Last font selected using default setting
Special printing effects	Cancelled (except condensed and economy printing)
User-defined character set	Hardware/control panel initialization: cleared Software initialization: deselected only
Graphic mode assignment	ESC K = ESC * 0, ESC L = ESC * 1, ESC Y = ESC * 2, ESC Z = ESC * 3

In addition, hardware and control panel initialization erases any text in the data buffer.

Appendix B

Commands and Character Tables

Command List B-2

Character Tables B-3
International Character Sets B-7
Characters Available with ESC (^ Command B-8

B

Command List

This printer works with the following ESC/P 2 commands. If you need more information about using printer commands, you can purchase the *ESC/P 2 Reference Manual* (ESCP2REF) from EPSON Accessories by calling (800) 873-7766 (in the U.S. only). In Canada, call (800) BUY-EPSON for sales locations.

General operation:
ESC @, ESC U, ESC EM

Paper feeding
CR, FF, LF, ESC 0, ESC 2, ESC 3 , ESC +

Page format
ESC (C, ESC C, ESC C 0, ESC Q, EXC 1, ESC (c, ESC N, ESC O

Print position motion
ESC $, ESC \, ESC (V, ESC (v, ESC D, HT, ESC B, ESC J, VT

Font selection
ESC k, ESC x, ESC X, ESC P, ESC g, ESC p, ESC 4, ESC 5, ESC E, ESC F, ESC !, ESC M

Font enhancement
ESC W, DC4, SO, DC2, SI, ESC w, ESC G, ESC H, ESC T, ESC S, ESC -, ESC q

Spacing
ESC SP, ESC c, ESC (U

Character handling
ESC t , ESC (t, ESC R, ESC %, ESC &, ESC :, ESC 6, ESC 7, ESC (^

Bit image
ESC *

Graphics
ESC (G, ESC ., ESC (e

Color
ESC r

MicroWeave
ESC (i

Character Tables

The printer comes with an installed set of character tables. However, when printing from Windows and most DOS software programs, the printer prints the characters you see on screen and does not use its built-in character tables. Unless you're printing from a DOS program, and cannot print the character you need, you should never have to change the character table.

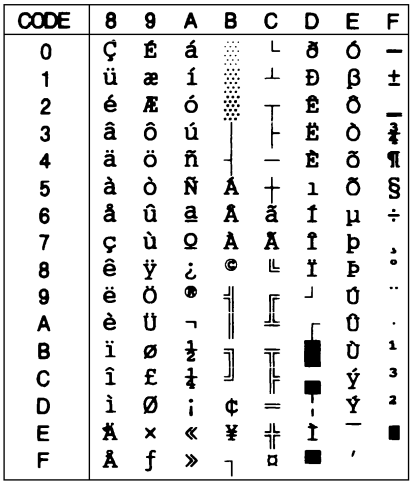
These character tables are selected using the printer's Default setting mode or by using software commands.

All tables except the italic are the same as the PC437 table for hex codes 00 through 7F, so only the PC437 table is shown completely. The rest of the tables show only the characters for hex codes 80 through FF.

PC437 (U.S., Standard Europe)

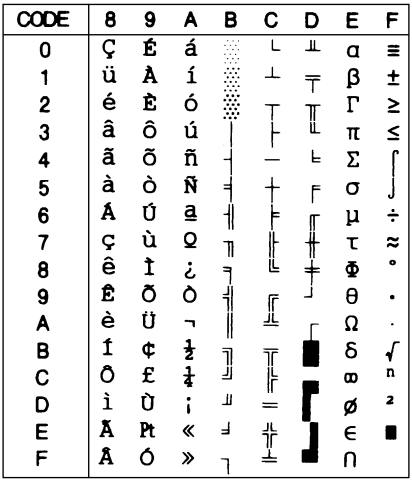
CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL			0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1			!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	β	±
2		DC2	"	2	B	R	b	r	é	Æ	ó	▒	┬	╙	Γ	≥
3			#	3	C	S	c	s	â	ô	ú	▒	├	╘	π	≤
4		DC4	$	4	D	T	d	t	ä	ö	ñ	▒	─	╒	Σ	⌠
5		§	%	5	E	U	e	u	à	ò	Ñ	▒	┼	╓	σ	⌡
6			&	6	F	V	f	v	å	û	ª	▒	╞	╫	µ	÷
7			'	7	G	W	g	w	ç	ù	º	▒	╟	╪	τ	≈
8			(	8	H	X	h	x	ê	ÿ	¿	▒	╚	┘	Φ	°
9	HT	EM	)	9	I	Y	i	y	ë	Ö	⌐	▒	╔	┌	θ	∙
A	LF		*	:	J	Z	j	z	è	Ü	¬	▒	╩	█	Ω	·
B	VT	ESC	+	;	K	[	k	{	ï	¢	½	▒	╦	▌	δ	√
C	FF		,	<	L	\	l	¦	î	£	¼	▒	╠	▐	∞	n
D	CR		-	=	M	]	m	}	ì	¥	¡	▒	═	▀	ø	2
E	SO		.	>	N	^	n	~	Ä	₧	«	▒	╬	▄	∈	■
F	SI		/	?	O	_	o		Å	ƒ	»	▒	╧	▄	∩	

PC850 (Multilingual)



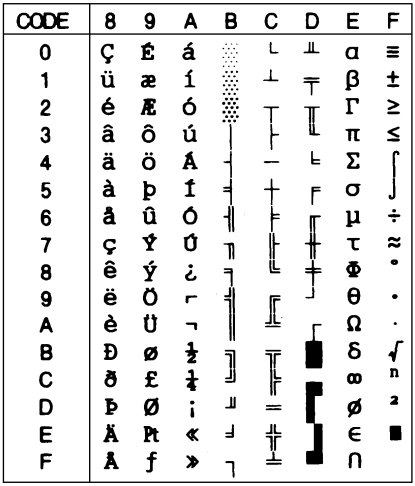
CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	ð	Ó	―
1	ü	æ	í	▒	┴	Ð	ß	±
2	é	Æ	ó	▒	┬	Ê	Ô	‗
3	â	ô	ú	▒	├	Ë	Ò	¾
4	ä	ö	ñ	▒	─	È	õ	¶
5	à	ò	Ñ	Á	┼	ı	Õ	§
6	å	û	ª	Â	ã	Í	µ	÷
7	ç	ù	º	À	Ã	Î	þ	¸
8	ê	ÿ	¿	©	╚	Ï	Þ	°
9	ë	Ö	®	╣	╔	┘	Ú	¨
A	è	Ü	¬	║	╩	┌	Û	·
B	ï	ø	½	╗	╦	▒	Ù	¹
C	î	£	¼	╝	╠	▒	ý	³
D	ì	Ø	¡	¢	═	▒	Ý	²
E	Ä	×	«	¥	╬	Ì	▒	■
F	Å	ƒ	»	┐	¤	▒	´	

PC860 (Portuguese)



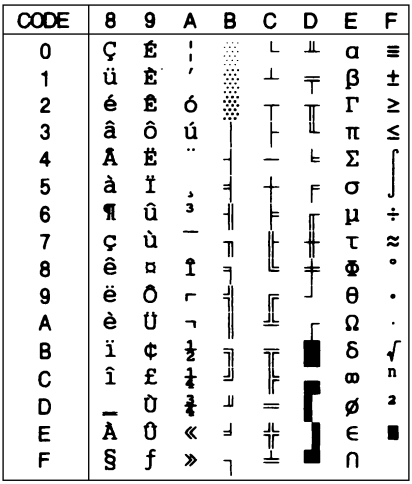
CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	╨	α	≡
1	ü	À	í	▒	┴	╤	β	±
2	é	È	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	▒	├	╙	π	≤
4	ã	õ	ñ	▒	─	╘	Σ	⌠
5	à	ò	Ñ	╡	┼	╒	σ	⌡
6	Á	Ú	ª	╢	╞	╓	µ	÷
7	ç	ù	º	╖	╟	╫	τ	≈
8	ê	Ì	¿	╕	╚	╪	Φ	°
9	Ê	Õ	Ò	╣	╔	┘	θ	∙
A	è	Ü	¬	║	╩	┌	Ω	·
B	Í	¢	½	╗	╦	▒	δ	√
C	Ô	£	¼	╝	╠	▒	∞	ⁿ
D	ì	Ù	¡	╜	═	▒	ø	²
E	Ã	₧	«	╛	╬	▒	∈	■
F	Â	Ó	»	┐	╧	▒	∩	

PC861 (Icelandic)



CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	╨	α	≡
1	ü	æ	í	▒	┴	╤	β	±
2	é	Æ	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	▒	├	╙	π	≤
4	ä	ö	Á	▒	─	╘	Σ	⌠
5	à	Þ	Í	╡	┼	╒	σ	⌡
6	å	û	Ó	╢	╞	╓	µ	÷
7	ç	Ý	Ú	╖	╟	╫	τ	≈
8	ê	ý	¿	╕	╚	╪	Φ	°
9	ë	Ö	⌐	╣	╔	┘	θ	∙
A	è	Ü	¬	║	╩	┌	Ω	·
B	Ð	ø	½	╗	╦	▒	δ	√
C	ð	£	¼	╝	╠	▒	∞	ⁿ
D	Þ	Ø	¡	╜	═	▒	ø	²
E	Ä	₧	«	╛	╬	▒	∈	■
F	Å	ƒ	»	┐	╧	▒	∩	

PC863 (Canadian-French)



CODE	8	9	A	B	C	D	E	F
0	Ç	É	¦	▒	└	╨	α	≡
1	ü	È	´	▒	┴	╤	β	±
2	é	Ê	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	▒	├	╙	π	≤
4	Â	Ë	¨	▒	─	╘	Σ	⌠
5	à	Ï	¸	╡	┼	╒	σ	⌡
6	¶	û	³	╢	╞	╓	µ	÷
7	ç	ù	‗	╖	╟	╫	τ	≈
8	ê	¤	Î	╕	╚	╪	Φ	°
9	ë	Ô	⌐	╣	╔	┘	θ	∙
A	è	Ü	¬	║	╩	┌	Ω	·
B	ï	¢	½	╗	╦	▒	δ	√
C	î	£	¼	╝	╠	▒	∞	ⁿ
D	‗	Ù	¾	╜	═	▒	ø	²
E	À	Û	«	╛	╬	▒	∈	■
F	§	ƒ	»	┐	╧	▒	∩	

PC865 (Nordic)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	╨	α	≡
1	ü	æ	í	▒	┴	╤	β	±
2	é	Æ	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	▒	├	╙	π	≤
4	ä	ö	ñ	▒	─	╘	Σ	⌠
5	à	ò	Ñ	▒	┼	╒	σ	⌡
6	å	û	ª	▒	╞	╓	µ	÷
7	ç	ù	º	▒	╟	╫	τ	≈
8	ê	ÿ	¿	▒	╚	╪	Φ	°
9	ë	Ö	⌐	▒	╔	┘	θ	∙
A	è	Ü	¬	▒	╩	┌	Ω	·
B	ï	ø	½	▒	╦	▌	δ	√
C	î	£	¼	▒	╠	▐	∞	ⁿ
D	ì	Ø	¡	▒	═	▀	ø	²
E	Ä	₧	«	▒	╬	▄	∈	■
F	Å	ƒ	¤	▒	╧	▄	∩	

Abicomp

CODE	8	9	A	B	C	D	E	F
0	NUL			Ò	¡	ò		
1			À	Ó	à	ó		
2		DC2	Á	Ô	á	ô		
3			Ã	Õ	â	õ		
4		DC4	Ä	Ö	ã	ö		
5			Å	Œ	ä	œ		
6			Ç	Ù	ç	ù		
7			È	Ú	è	ú		
8			É	Û	é	û		
9	HT	EM	Ê	Ü	ê	ü		
A	LF		Ë	Ÿ	ë	ÿ		
B	VT	ESC	Ì	¨	ì	ß		
C	FF		Í	£	í	ª		
D	CR		Î	·	î	º		
E	SO		Ï	§	ï	¿		
F	SI		Ñ	°	ñ	±		DEL

BRASCII

CODE	8	9	A	B	C	D	E	F
0	NUL			°	À	Ð	à	ð
1			¡	±	Á	Ñ	á	ñ
2		DC2	¢	²	Â	Ò	â	ò
3			£	³	Ã	Ó	ã	ó
4		DC4	¤	´	Ä	Ô	ä	ô
5			¥	µ	Å	Õ	å	õ
6			¦	¶	Æ	Ö	æ	ö
7			§	·	Ç	Œ	ç	œ
8			¨	¸	È	Ø	è	ø
9	HT	EM	©	¹	É	Ù	é	ù
A	LF		ª	º	Ê	Ú	ê	ú
B	VT	ESC	«	»	Ë	Û	ë	û
C	FF		¬	¼	Ì	Ü	ì	ü
D	CR			½	Í	Ý	í	ý
E	SO		®	¾	Î	Þ	î	þ
F	SI		¯	¿	Ï	ß	ï	ÿ

Italic

CODE	8	9	A	B	C	D	E	F
0	NUL			*0*	*@*	*P*	*`*	*p*
1			*!*	*1*	*A*	*Q*	*a*	*q*
2		DC2	*"*	*2*	*B*	*R*	*b*	*r*
3			*#*	*3*	*C*	*S*	*c*	*s*
4		DC4	*$*	*4*	*D*	*T*	*d*	*t*
5			*%*	*5*	*E*	*U*	*e*	*u*
6			*&*	*6*	*F*	*V*	*f*	*v*
7			*'*	*7*	*G*	*W*	*g*	*w*
8			*(*	*8*	*H*	*X*	*h*	*x*
9	HT	EM	*)*	*9*	*I*	*Y*	*i*	*y*
A	LF		***	*:*	*J*	*Z*	*j*	*z*
B	VT	ESC	*+*	*;*	*K*	*[*	*k*	*{*
C	FF		*,*	*<*	*L*	**	*l*	*¦*
D	CR		*-*	*=*	*M*	*]*	*m*	*}*
E	SO		*.*	*>*	*N*	*^*	*n*	*~*
F	SI		*/*	*?*	*O*	*_*	*o*	

No characters are available for hex code 15 in the italic character table.

International Character Sets

You can select one of the following international character sets using the printer's Default setting mode or the ESC R command. For example, when you select "Italic France," the characters in the "France" row on the table below are used in the italic character table.

The following eight international character sets can be selected using Default setting mode or with the ESC R command.

Country	ASCII code hex											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
USA	#	$	@	[	\	]	^	`	{	¦	}	~
France	#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
UK	£	$	@	[	\	]	^	`	{	¦	}	~
Denmark	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain	Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~

The following seven additional sets can be selected only with the ESC R command.

Country	ASCII code hex											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
Japan	#	$	@	[	¥	]	^	`	{	¦	}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Spain II	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
Latin America	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
Korea	#	$	@	[	₩	]	^	`	{	¦	}	~
Legal	#	$	§	°	′	″	¶	`	©	®	†	™

Characters Available with ESC (^ Command

To print the characters in the table below, use the ESC (^ command.

CODE	0	1	7
0		▶	
1	☺	◀	
2	☻	↕	
3	♥	‼	
4	♦	¶	
5	♣		
6	♠	▁	
7	•	↨	
8	◘	↑	
9	○	↓	
A	◙	→	
B	♂	←	
C	♀	∟	
D	♪	↔	
E	♫	▲	
F	☼	▼	⌂

Glossary

auto line feed
When this feature is selected in the printer's Default setting mode, each carriage return (CR) code is automatically followed by a line feed (LF) code.

bidirectional printing
Printing in which the print head prints in both directions (bidirectionally). This increases print speed but may reduce precise vertical alignment. Also called *high speed printing*.

brightness
The lightness or darkness level of an image.

character table
The collection of letters, numbers, and symbols that constitute the set of characters used in a particular language.

CMY
A method of specifying and creating colors using Cyan (blue-green), Magenta, and Yellow.

condensed printing
Printing in which the width of each character is approximately 60% of the width of standard characters. Useful for fitting wide tables or spreadsheets on a page.

contrast
The range of difference between the darkest and lightest colors in an image. The greater the difference, the higher the contrast.

control code
A special code used to control a printer function such as performing a carriage return or line feed.

default
A value or setting that takes effect when the equipment is turned on, reset, or initialized.

dithering
A way of arranging dots on a page to simulate a shade or tone. See also *halftoning*.

dpi
Dots per inch. The dpi measures the resolution. See also *resolution*.

driver
See *printer driver*.

economy printing
Printing in which images are printed with fewer dots to save ink. Economy mode printing is faster, too.

error diffusion
A halftoning method where dot patterns are randomly distributed in an image to create soft edges.

ESC/P®
EPSON Standard Code for Printers. The system of commands sent by the computer to control the printer. It is standard for all EPSON printers and supported by most application software for personal computers.

ESC/P 2
Enhanced version of the ESC/P printer command language.

font
A style of type designated by a family name.

grayscale
An image consisting of multiple shades of gray, ranging from white to black.

halftoning
Method of repeating tiny dot patterns to represent images.

hex dump
A troubleshooting feature that helps advanced users find the cause of communication problems between the printer and the computer. When the printer is in hex dump mode, it prints each code it receives in hexadecimal notation and ASCII characters. Also called data dump.

high speed printing
Printing in which images are printed in both directions for the purpose of printing faster.

initialization
The process of restoring the printer's default settings (fixed set of conditions).

ink jet
A method of printing in which the printer produces each character by precisely spraying ink onto paper or other media.

interface
The connection (via a cable) between the computer and the printer over which print data is transmitted to the printer.

media
Materials upon which data is printed such as envelopes, plain paper, coated or glossy paper, and transparency film.

MicroWeave
A printing method in which images are printed in finer increments to reduce the possibility of banding and to produce laser-like images.

monochrome printing
Printing in only one color. For the Stylus COLOR IIs, monochrome printing refers to printing with black ink.

printable area
The area of a page on which the printer can print. It is smaller than the physical size of the page due to margins.

printer driver
A software program that sends commands for using the features of a particular printer.

print head unit
The printer mechanism that contains the ink cartridge and distributes the ink onto printing media.

printing mode
A driver setting that assigns the number of dots per inch used to represent an image. Your printer has three printing mode settings: Super - 720 dpi, Best - 360 dpi, and Draft - 180 dpi. See also *resolution*.

reset
To return a printer to its default settings.

resolution
A measure of the amount of detail that can be represented. Resolution of printed images is measured in number of dots per inch (dpi). Your printer has three resolution settings: 720 × 720, 360 × 360, and 180 × 180 dpi. See also *printing mode*.

RGB
A method of specifying color by its component proportion of red, green, and blue. Computer monitors use this method to represent colors.

saturation
The degree to which a color is undiluted by white light. The more saturated the color, the more pure and bright it is.

self test
A method for checking the operation of the printer. When you run the self test, the printer prints the characters stored in its memory.

subtractive colors
Colors produced by pigments that absorb some colors of light and reflect others.

unidirectional printing
Printing in which the print head prints in one direction only. Unidirectional printing is useful for printing graphics because it allows precise vertical alignment.

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